The Orchadian

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Official Journal of the Australasian Native Orchid Society

Celebrating 50 years of cultivating, studying and promoting Australasian Orchids.

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Phaius australis var. *bernaysii*—emblem: 7th Australasian Native Orchid Conference and Show

The Orchadian

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CONTENTS

Editorial . . . . Greg Steenbeeke 388
Presidents Message . . . . . . Rick Winch 389

ARTICLES

Bus touring with Beenleigh . . . . . Diane Walker 390
Wollongong Hospital—One more time . . . . Alan Stephenson 391
Forty five years of terrestrial growing and hybridising . . Les Nesbitt 396
Colonials and Aussies—Australasian orchids and historical notes Phil Spence 402
A bit more about *Sarcochilus hartmannii*—changes under cultivation KY & S Chan 412
Response of Orchids to the 2009 Black Saturday Bushfires . Mike Duncan 417
Corunastylis tenella (Orchidaceae: Diurideae), a new species from north-eastern New South Wales and south-eastern Queensland . . . . D.L. Jones & L. Copeland 423
Notes on four species of Solomon Archipelago and Vanuatu *Agrostophyllum* Paul Ormerod 426

FIGURES

Phaius australis var. *bernaysii*, emblem of 7th ANOCS . . Jon Cara Cover
Dendrobium 'Blue' (labelled *Dockrillia* Blue at Warringah show 2011) Greg Steenbeeke 388
Dendrobium Hilda Poxon . . . . . . Mike Baker 389
Beenleigh Bus Tour group . . . . . . Diane Walker 390
Albert Vasquez and Taryn de Yonge with the plants offered for sale Alan Stephenson 391
Alan Stephenson with the plants offered for sale . . Taryn de Yonge 392
An example of racemes on the *Dendrobium speciosum* divisions Alan Stephenson 392
Dendrobium Lustrous x Riversun . . . . . David Banks 393
Dendrobium Bergun 'Dungog' . . . . . David Banks 394
Dendrobium Sarah Jane 'Purvis' . . . . . David Banks 394
Dendrobium Avril's Gold . . . . . . Mike Baker 395
Dendrobium Aussie Parade 'Rustic' . . . . . Mike Baker 395
Dendrobium Australian Ginger . . . . . Mike Baker 395
Dendrobium Cosmic Gold 'D.C.' . . . . . Mike Baker 395
Figure 1. Massed display of *Pterostylis pedunculata* . . Greg Steenbeeke 396
Figure 2. *Diuris* Pioneer 'Big Ears' . . . . . Greg Steenbeeke 397
Figure 3. Flowers of *Caladenia latifolia* . . . . . Greg Steenbeeke 398
Dendrobium Aussie Parade . . . . . . Greg Steenbeeke 404

Index continues on page 429

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Editorial

Spring is just around the corner, and this issue is timed to coincide with the Conference and Show in Strathpine. I am sure that we will be in for a great show. Winter has been very mild for most parts of Australia, and the Bureau of Meteorology has noted that it was the warmest July in records for Sydney, Melbourne and Brisbane. Many have said that the flowering season is advanced, and that promises to make it a great show.

In this issue there are articles on culture, conservation and history, as well as wrap up of the recent Tinonee open day and how Beenleigh treats its members to bus tours. Additionally, we have the conclusion of the Wollongong Hospital *Dendrobium speciosum* saga, which Alan Stephenson first revealed to us 6 months ago. Great to know that these plants will continue to be a part of the Illawarra community.

Mike Duncan's paper was prepared originally as a talk to the Rural Fire Service and land managers to help them consider orchids in the aftermath of fires. I heard him speak at the Sydney ANOS group and from that asked if he would provide the talk as a paper for wider distribution among the orchid growing community. While the tragic setting that brought about this need for education was the result of a particular set of extreme circumstances, there are certainly indications that this scale of event will become a more frequent occurrence. In the interim though, a large (and increasing) part of the community's response is to increase the amount of 'hazard reduction' burning that occurs. While the value of this is still not entirely clear, it is certainly worth noting that the fire-affected and fire-sensitive species will be killed or badly affected by a hazard reduction as much as a wildfire. It then becomes the frequency of fire that is affecting the populations of orchids in their natural habitats.

Yin and Sau-wan Chan pick up the baton of those writers that brought us the 'a bit about...' series that used to grace these pages. Their target is *Sarcochilus hartmannii*, and they do a very brief review of how the award-quality plants have changed. Whether this is because of select breeding, or because of the culture is maybe harder to distinguish, but it is certainly worth noting that the plants being awarded now are the result of selective breeding programs.

Phil Spence and Les Nesbitt continue the series of 50th Anniversary articles with tales from their specialty areas. Les is well known to the 'spud' growers as one of the best known sources of terrestrial orchids. He provides us with a history of the trials and tribulations he has had with bringing this wealth of orchids to our benches and shows.

Phil Spence provides us with a history of his efforts—including time spent in New Guinea and the efforts he has made to bring these species, and hybrids made from them, into cultivation in Australia. He is best known for the hybrid work in *Dendrobium* sections Latouria and Rhizobium, and efforts to blend these with the more typical Aussies. His work in the Rhizobium breeding in particular laid the groundwork for the many diverse hybrids in this group that continue to entrance many Australian growers.

So, with that teaser, I trust you will enjoy this issue and I hope that those there enjoy the conference.

Greg Steenbeeke

Dendrobium 'Blue' (only label at show)

President's Report

The past 3 years that I have served as President of ANOS have been a wonderful experience for me, and I am sad that it must end. However, I believe that in conjunction with an extremely hard working and diligent Committee we have been able to turn the ANOS organisation around to make it stronger and representative of all ANOS memberships, both individual and Groups.

I look forward to the Annual General Meeting to be held in conjunction with the 7th ANOS Conference hosted by the ANOS Kabi Group in Brisbane, and I look forward to meeting there as many members as possible.

Please consider nominating for a position on Council or as a Councillor. Nomination Forms have been forwarded to ANOS Group contacts.

I encourage all members to fully support their ANOS Groups by attending regular meetings and displaying your orchids at each event, even though you may not think your orchids may not be up to standard. The one you leave home could be a champion.

Engage your Committee in your area, encourage discussion on how the Group can be improved.

And please consider subscribing to *the Orchadian*. It is our 'masthead' publication and always a great read.

In closing, may I sincerely thank each and every ANOS Council Committee member and Councillors who have served during the past 3 years. You can be assured you all have my utmost respect.

Kind Regards

Rick Winch, President

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Dendrobium Hilda Poxon—Novice Popular Vote at Bunbury Orchid Society.

Bus Touring with Beenleigh

Diane Walker, President.

Over the last couple of years, ANOS Beenleigh Group have run bus trips on a monthly basis. We hire a small bus from the PCYC. We have our own driver who drove a fuel tanker for many years. Everyone feels safe in David Cleal's capable hands. Members pay $10.00 per head.

These trips are not to make money but to allow people to see what others growers do with their orchids, purchase orchids and hopefully learn lots on the way.

We visit Orchid Nurseries and also private growers to enable members to see what types of growing conditions are available. A popular choice is Cedarvale Orchids that is run by Ross and Rhonda Harvey. Ross has done much breeding with our beautiful *Dendrobium bigibbum* and speciosums.

A private grower, Ken Unsworth is also very popular. Ken is a very good hard cane *Dendrobium* grower. He has also been a guest speaker at our club and his talks are very interesting, as he discusses his mistakes as well as his achievements. On leaving Kens private collection our little vehicle is usually packed with plants that members "Could just not leave behind at that price".

Our usual agenda is to visit a nursery or a private collection, then go to a Service or Bowls Club for lunch. After a good meal we set off to see another Nursery or private grower.

Small bush walks have been held in the same fashion. The most popular walk is at Cunningham's Gap. Some new members saw orchids *in situ* for the first time. Exciting!

This enjoyable service has brought new members to our club. We aim to be a friendly club and if there are spare seats available then members friends or visitors are welcome to join us. Naturally members get first preference.

So if you are in the Beenleigh area, our contact details are available on our web site at http://www.ourshopfront.com/anosbeenleigh/

Call our Treasurer, Mrs Dulcie Neagle to see if it is possible to join us on our next excursion.

My best to all orchid growers.

Wollongong Hospital—One More Time

Alan Stephenson (affine@tpg.com.au)

Albert Vasquez and Taryn de Yonge—project officers with the hospital reconstruction, standing beside the table of plant divisions sold or to be sold, to fund activities at the hospital.

The final chapter regarding the removal of large plant of *Dendrobium speciosum* from a fig tree in the grounds of Wollongong Hospital is now complete. In September of 2012 the plant was removed, transferred to my home in Nowra, divided and eventually repotted into 76 individual plants.

The plants were mainly placed in 200 mm and 175 mm pots and more than half of these produced inflorescences. Those which did not were well established with a few stragglers in 150 mm pots. These were the divisions which only produced a new growth or root system six months after division, proving once again the enormous recovery capacity for which this species is renowned.

In the interim I and my frequent photographic companion, Denis Wilson returned to the hospital to relocate several small sections to two other fig trees to enable the "flowering heritage" of the orchid to continue *ad infinitum*.

The large tree containing the orchid and the adjacent very prickly Cycad has long since been removed and the new surgical wing is undergoing construction.

During the intervening months the Capital Works Project Officers at the hospital, Albert Vasquez and Taryn de Yonge were busy arranging the sale of the orchid to hospital staff. It was the same staff which exerted pressure on hospital management to save the orchid when they learned of its possible demise and full credit to them for their conservation initiative as they felt the necessity to retain the view of a very large native orchid if at all possible. Many staff had extensive contact with the orchid for most of their working life at the hospital and are pleased to see that contact will continue.

A seller's licence was purchased and NPWS numbered tags were on all plants and the only objectionable part was the term "Rock Lily" listed after *Dendrobium speciosum*. Those who know me will attest to my complete dislike of this term and although it will not change anything I will certainly express my feelings to NPWS.

In the last week prior to the sale I had compiled a list of plants, allocated a tag to each with a price according to size and or number of inflorescences on each plant for pre-sale to staff.

To enable the best price for all divisions I had arranged for the sale to occur in mid-July as any inflorescences which were likely to appear would be evident by that time so a date of July 19th was chosen. A covered area near the main entrance was to be the sales area, tables were positioned and those plants not already pre-sold were placed on the table and all others were separate with the name of the purchaser on the pot.

Only a few plants went unsold on the day but three of these were sold a few days later to interested Nowra people who had indicated their interest. A few smaller plants are to be situated in a garden section of the hospital.

Alan Stephenson showing great pride in his efforts to salvage important orchid heritage.

It has been 10 months since the plant was removed and the process has required four trips to the hospital but at least the orchid has found several dozen new homes and its future flowering can be assured. I was informed by one of the purchasers the flower colour is a deep yellow.

The two people with whom I had contact, Albert and Taryn, were a delight to work with and on the day of the sale Taryn was very thorough with receipts organised for all purchases. These also listed the NPWS tag number of each plant. For me the exercise was most satisfying despite the many hours spent dividing, potting, watering, fertilising and constructing temporary benches at my home to accommodate the plants through the hottest summer in decades and I wish all rescue efforts were this successful.

An example of the racemes on the divided plants that were offered for sale back to the hospital staff.

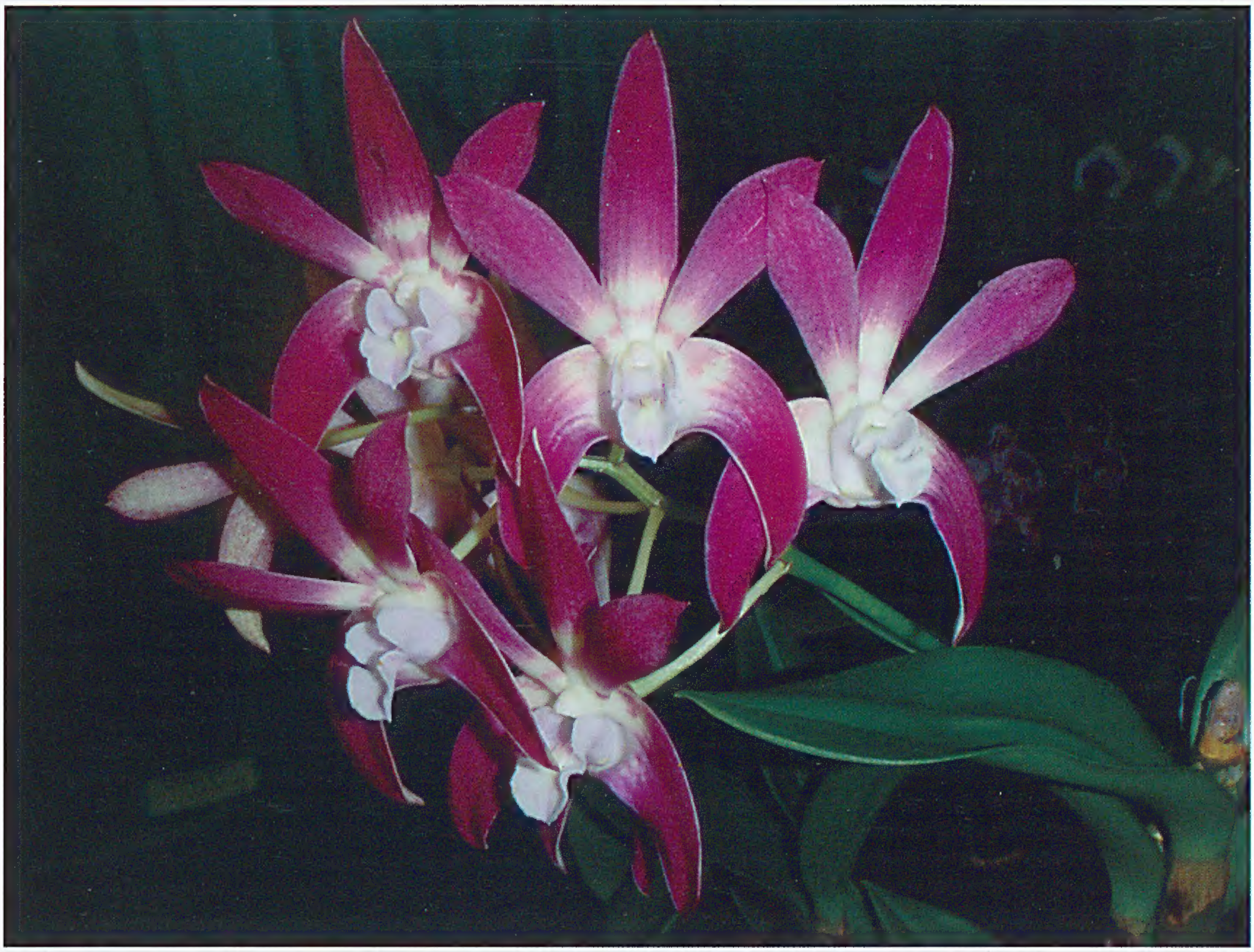
Tinonee Orchids Open Day 2013

Ray Clement (orchids@tinoneeorchids.com)
Photographs by David Banks

This year's Annual Open Day & Show was again very well attended, with many exhibitors and an impressive array and variety of choice orchids. The early-flowering Australian native *Dendrobium* hybrids are always a feature, with many proven cultivars and new seedlings benched by a number of seasoned enthusiasts such as Henk van den Berg and Wayne Perrin. Wayne, in fact, won Champion Australian Native Hybrid with his plant of *Dendrobium* (Lustrous x Riversun).

We were blessed with perfect weather over the weekend. This provided an ideal atmosphere for reacquainting friendships old & new in a very relaxed and informal environment. The BBQ was very popular, providing a great backdrop for friendly orchid chat. A great chance to relax, swap a yarn & enjoy the company.

A new initiative we started this year, was a free Orchid Workshop held on the Saturday. This was sponsored by the *Australian Orchid Review* and featured a free sausage sizzle at lunchtime. This year, our speakers were Ray Clement on "An Introduction to Orchids", Scott Barrie from Barrita Orchids on "Getting the most out of your Cymbidiums", Michael Harrison from Macquarie Native Orchids on "Growing Epiphytic Orchids on Mounts and Slabs" and David Banks from Hills District Orchids on "Growing and Selecting the Best Orchids for your Collection". It was a very successful and enjoyable workshop, that we will repeat in 2014. On the Sunday, we again featured potting demonstrations and advice from experienced local orchid growers.



Champion Australian Native Hybrid at Tinonee 2013 Open Day— *Dendrobium* Lustrous x Riversun, owned by Wayne Perrin. Photograph by David Banks.

Next year's annual Tinonee Orchids Open Day and Show will be held on Sunday 6th July 2014 at the Nursery, 768 Tinonee Road, Tinonee (just out of Taree, on the NSW Mid-north Coast). This will be our 20th Annual Open Day! We are already planning a few surprises. Contact the nursery on 02 6553 1012 for further details. There is plenty of accommodation available close-by in Taree and Wingham.

Next year we will again be running a raffle of donated prizes and all proceeds will be given to support Retina Australia – Fighting Blindness (www.retinaaustralia.com.au) and research into Retinitis Pigmentosa (RP), a genetic degenerative eye disease. Close to $600 was raised at the 2013 Open Day. The team at Tinonee Orchids is very proud to have the opportunity of supporting Retina Australia, and has done so for over a decade.

Dendrobium Bergen 'Dungog' (above) and *D.* Sarah Jane 'Purvis' (below). Photographs by David Banks.

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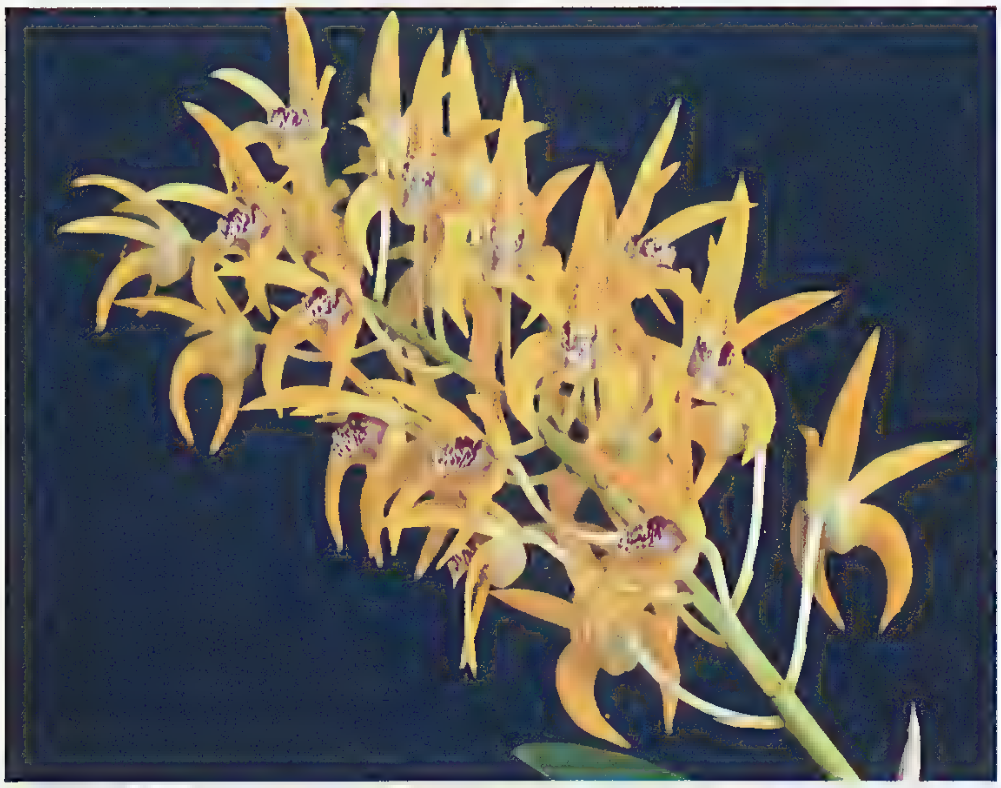
Photos from the West

Photos supplied by Mike Baker

Photos of some of the Australian and Australasian epiphyte hybrids on display at the Bunbury Orchid Society meeting and show in Western Australia.

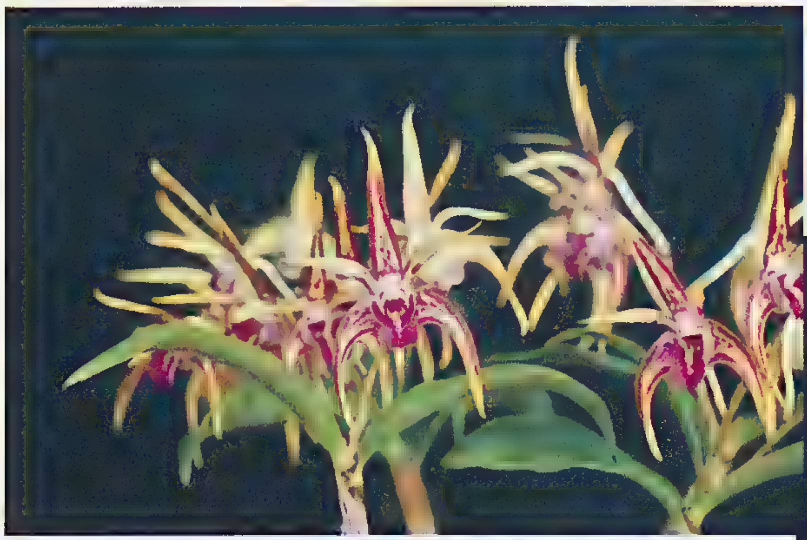


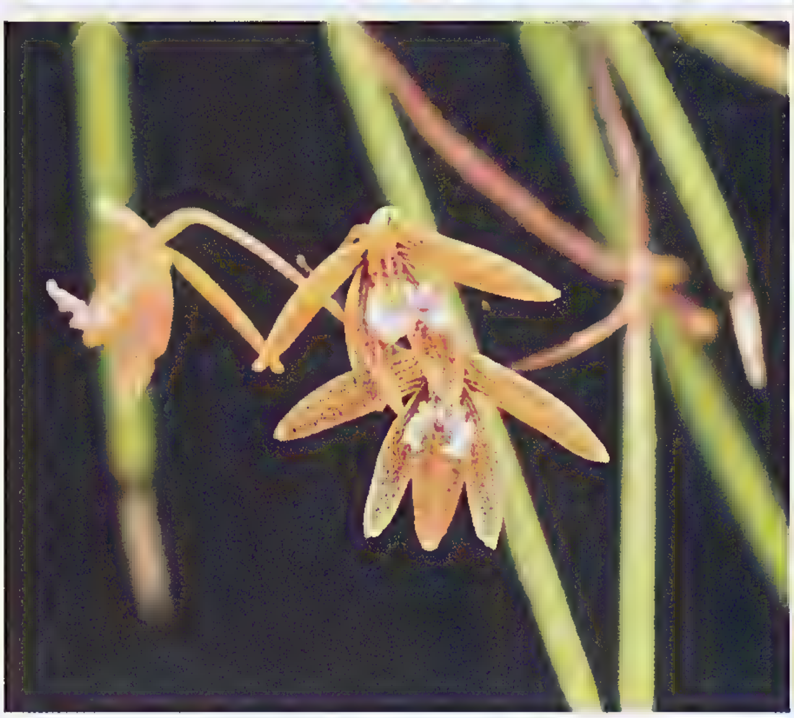
Dendrobium Avril's Gold (top);

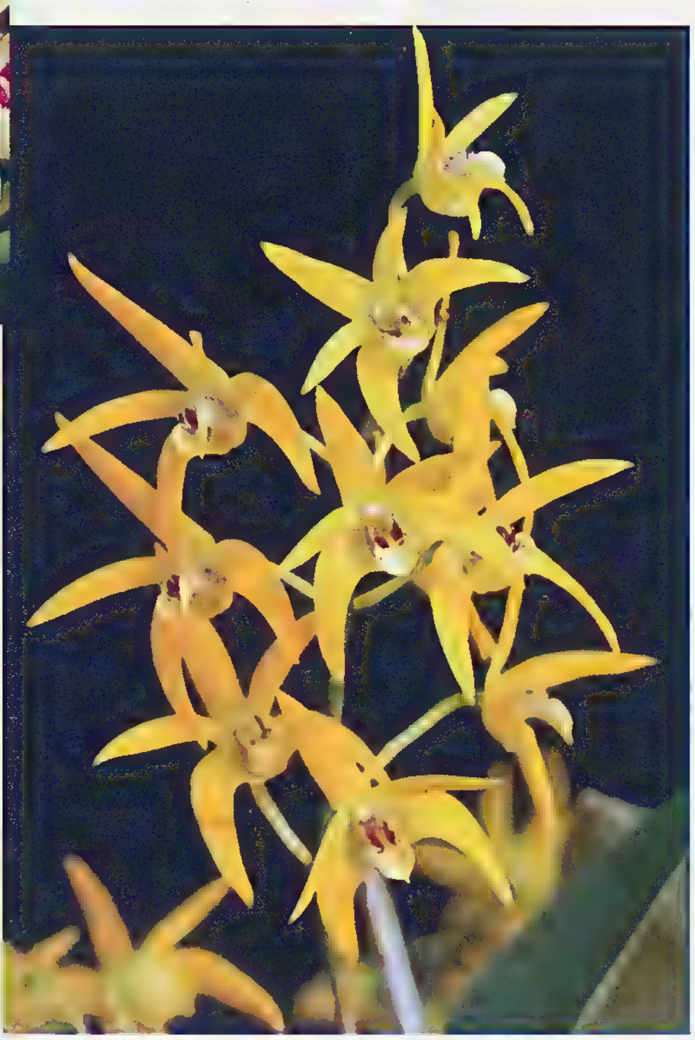
D. Aussie Parade 'Rustic' (middle);

D. Australian Ginger (lower left);

D. Cosmic Gold 'D.C.' (lower right)







Forty five years of terrestrial growing and hybridising

Les Nesbitt (Photographs by Greg Steenbeeke)

Now that I am in my seventies I can look back a long way. I started growing orchids as a young man in 1965. By 1970 I had a small collection of Australian terrestrials and gave away my surplus tubers to friends. They put no value on them, would lose the orchids and come back the next year and ask for more. After a couple of years I decided terrestrials had to have a price on their head to be respected and started selling dormant tubers and community pots on trading tables. It worked and people looked after their orchids. My mentors in those early years were Ray Nash and Harold Goldsack, both keen terrestrial growers in Adelaide.

In the 70's before the creation of The Native Orchid Society of SA Inc. (NOSSA) in 1977, there was close collaboration between growers like Bob Bates, George Nieuwenhoven and myself in SA and Helen Richards, Rick Datodi and Malcolm Thomas in Victoria. The basics of terrestrial potting mixes and cultural methods that were arrived at by trial and error in those heady years are still in use today. Starting about that time young researchers Kingsley Dixon in Perth, Mark Clements in Canberra and their mentor Dr Warcup in Adelaide, made valuable contributions to the understanding of orchid fungal relationships. Being a keen grower I put my orchids up for competition at various orchid society gatherings. At local shows there was only one class for Australian native orchids. A single terrestrial had no chance against a large epiphyte. This lead to the culture of 300mm pans of up to 50 flowering plants so that the judges would take notice. An epiphyte grower must have complained because a separate class was soon created for terrestrials.

The history of Nesbitts Orchids has been tied closely to the growing and breeding of terrestrial orchids in Southern Australia. I am forever amazed that no other nurseries have taken up the baton although some have tried and given up. I believe some of the reasons are: small market, cheap competition from Society tuber banks, labour intensive culture, mechanisation spreading virus, lack of cheap and easy methods of cultivating fungi, and few new colourful and easily flowered hybrids to create new fashions. Contrast that with the mass production of epiphyte seedlings which are easier to deflask and grow all year round.

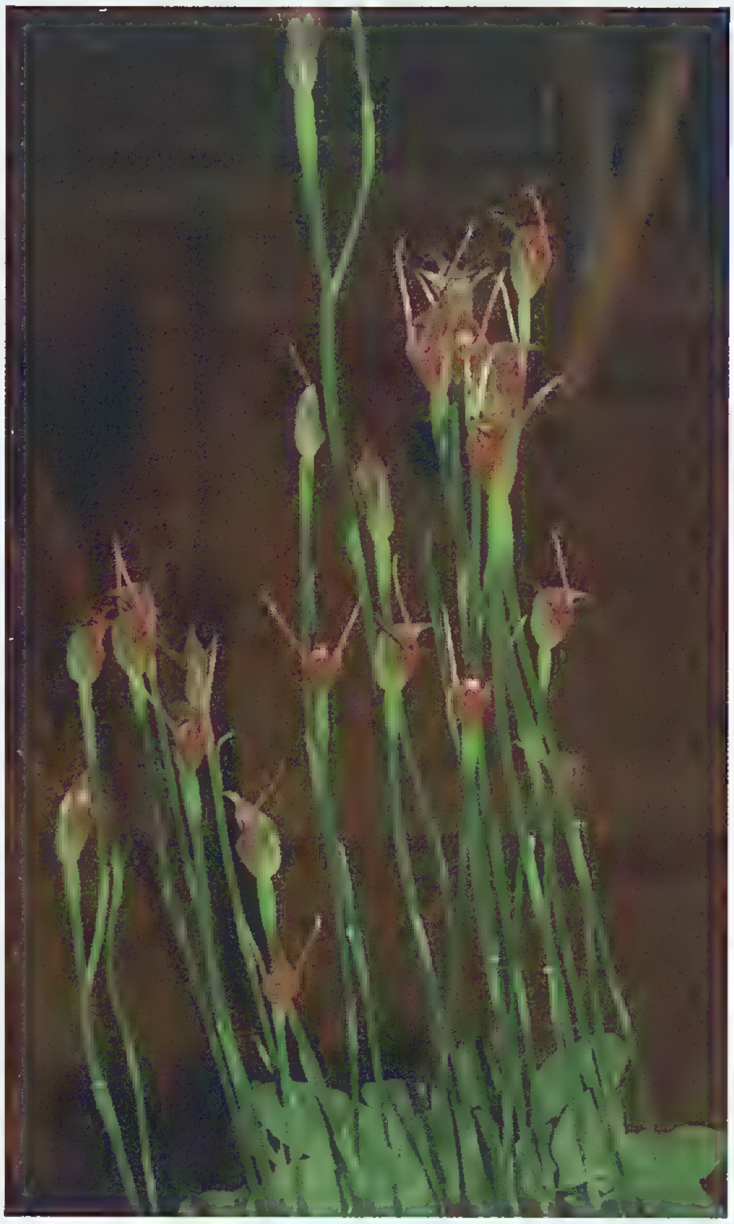


Figure 1. Massed display of *Pterostylis pedunculata*—what was (and is) needed to attract the eye when competing on the bench.

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Growing terrestrials is a lifestyle choice dedicated to conservation. You will never get rich. Maybe if I could only produce A4 size flying ducks and Queen of Sheba's I could satisfy the constant overseas enquiries from people who, having seen a nice large photo, want a tuber to plant in their garden.

L T and M K Nesbitt started trading as a purely terrestrial orchid nursery in 1975. This was also the year that our first successful terrestrial hybrid was made. The seed was amongst a batch given to Dr Warcup at the Waite Institute in Adelaide where he was the fungi expert. He germinated the seed using his orchid fungal cultures and gave us back small vials of seedlings. *Diuris maculata x longifolia* (now *pardina* x *orientis*) first flowered in 1980 and was registered as *Diuris* Pioneer. Of the 3 clones raised, the fastest multiplying clone was called 'Big Ears'. This clone is still surviving today, 33 years later. Unfortunately *Diuris* hybrids are difficult to make beyond primary crosses which is a great pity as this genus includes many colourful and eye-catching species well suited to the showbench.

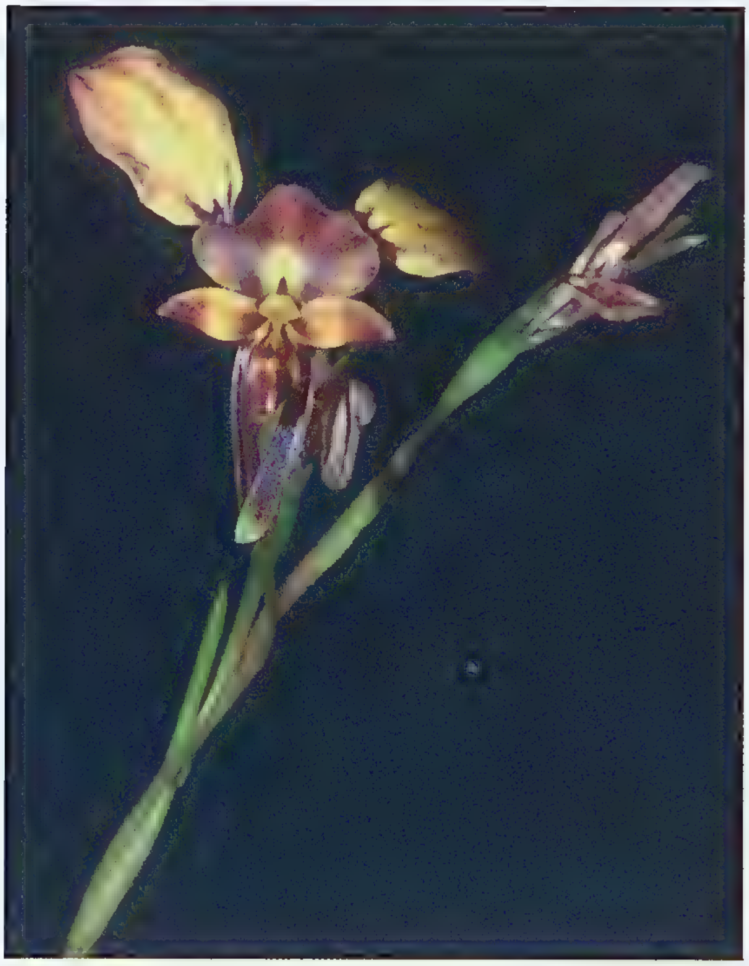

Figure 2. *Diuris* Pioneer 'Big Ears'

The 80's were the golden years of orchid growing and may never be surpassed. In South Australia with land clearance laws about to be tightened, farmers cleared bushland at an alarming rate. NOSSA was able to arrange many rescue digs that increased the numbers of terrestrials in cultivation. If only we knew then what we know now about fungal culture many more of those orchids would still be alive today. I still have some pots of these rescued orchids surviving in the original soil. They are not robust but come up year after year. The pots just get a fresh layer of leaf litter each summer. It took me 10 years to collect my first 100 terrestrial cultivars. Today a grower can build a collection of that size in one year by drawing on Society tuber banks, nursery stock and using the internet

Hybridising went on apace in the 80's. Most successful were the greenhoods, leading to new orchids with hybrid vigour and ease of flowering. Disappointingly the flared hood of *P. baptistii* does not come through in hybrids. By the second and third generations the hybrids started to look the same and there was limited demand for *Pterostylis*. Hybrids like Cutie, Hoodwink & Joseph Arthur are good vigorous free-flowering greenhoods worth trying. Thelymitra hybrids have rich bright colours with wide appeal. Hybrids with the yellow *Thelymitra antennifera* come in yellow, pink and purple & they multiply vegetatively. Notable hybrids that are easy to grow and flower are *T.* Goldfingers & *T.* Melon Glow. Unfortunately sun orchid flowers close at night and refuse to open in a cold spring show venue so are shunned by judges. They need 20-24°C and some humidity to open. I had built a heated glass fronted display cabinet. The judges would not judge through the glass which tended to fog up. They insisted on taking the pots out of the cabinet for close inspection and of course the flowers soon closed in the cold air. The cabinet nearly caught fire at one show so I stopped using it. The other showy group for hybridising are the spider orchids or caladenia alliance. These are fungus dependent and seldom multiply so have to be propagated from seed. Seed is easy to germinate in flask without fungi but deflasking is very difficult. The exception is *Caladenia latifolia* which is an easily grown colony type. I have used it with every available local species to produce some of my favourite hybrids like *C.* Fairy Floss and *C.* Harlequin. There is plenty of scope for future hybrids within this alliance now that fungal relationships are better understood.

All nurseries have setbacks and ours came in 1992 when Kay Nesbitt died of cancer after a year-long illness. In response, the nursery name was changed from L.T. & M.K. Nesbitt to Nesbitts Orchids. In 1993 I bought a 20ha bush

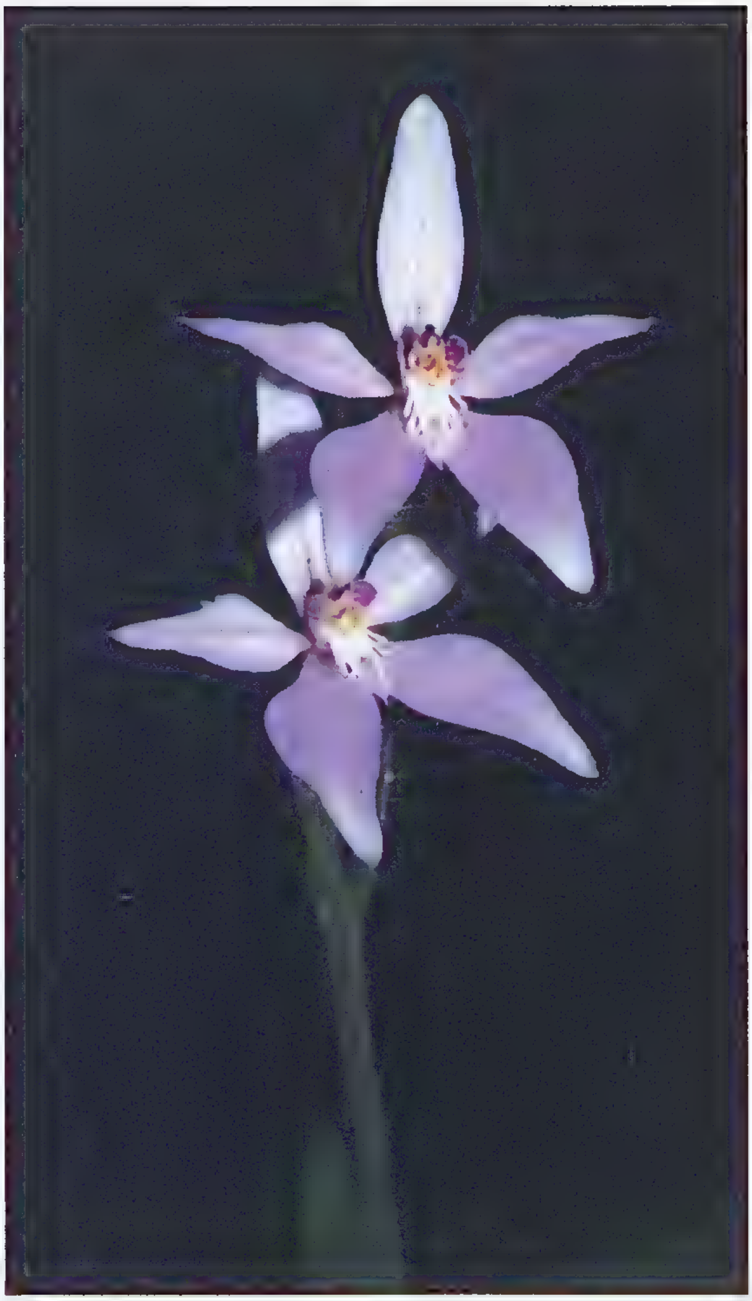

Figure 3. Flowers of *Caladenia latifolia*.

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block in the Adelaide Hills to conserve a wonderful patch of native vegetation. I later remarried and in 1996, the year of the ANOS Conference in Adelaide, a son was born. Under pressure at home & at work I tried to give up orchids after the conference. The Kersbrook nursery and most of the stock plants were sold but the bite of the orchid bug sinks deep and mail order sales continued from home.

In 2002 the neighbours raised fence heights and built house extensions against the northern fence line, cutting off winter sun to half my backyard shadehouse. This had a disastrous effect on the terrestrials which need at least 5 hours of winter sun daily to thrive. The response was to build a shadehouse on the bush block. In 2003 I gave up my day job and became a full time orchid grower. Over the next 10 years the growing areas were expanded and cyms, zygos and dens were grown to help pay for the bush block expenses. In 2004 NOSSA members had the chance to rescue orchids from a felled pine forest at Kuitpo that was about to be sprayed with weedkiller, ploughed up and replanted with pines. I was able to collect 18 species (all terrestrial as there are no epiphytes in SA). Along with the orchids came a black leaf rot which affected only *Thelymitra* and *Calochilus*. It decimated my *Thelymitra* collection. I have almost eliminated the rot by repotting annually and discarding the old soil but the sun orchid collection will never again be like the glory days of the 80's & 90's. New species collected at Kuitpo enabled the making of new hybrids like the beautiful brilliant blue *T.* Blue Heaven (*nuda x ixioides*) and the unusual intergeneric *T. nuda* x *Calochilus robertsonii*. Terrestrial hybridising has taken a back seat in recent years while I concentrated more on propagating exotic species & hybrids. Our nursery has sent out several hundred thousand terrestrial plants and tubers over the years. It makes you wonder how many still survive.

One development in Adelaide in recent years has been community groups replanting local provenance native plants on public land and in school grounds. There is a demand for local orchid species for these projects. In my local area terrestrial orchids have established successfully in parks and schools. Children and adults are taught about orchid life cycles and how important and fragile the orchids are.

In 2012 a local mining company contracted NOSSA to propagate the vulnerable listed *Diuris behrii* rescued from their mine site so that daughter tubers could be reintroduced to rehabilitation areas in future years. Several members carried out tuber removal in spring 2012. There are more than 100 daughter tubers were potted up in my shadehouse for replanting in winter 2013. The original clones are being maintained as mother plants and as a seed source.

I used to wish for magic dust that could be sprinkled on pots to get fungus dependent orchids to spring up from seed. Recently, fungi in small balls of gel have been developed for this purpose. A manufacturer is needed to make this product cheaply available to growers and conservationists.

There is a continuing need to teach new growers the skills to succeed with terrestrials. I will continue to grow terrestrials and supply & train growers for as long as I can. Hopefully I have a few more years left in me but the body is sending signals to start slowing down a bit. I am comforted by the cohort of growers and researchers I know are out there who will carry on the work of growing and hybridising Australian terrestrial orchids into the future. I wish them well.

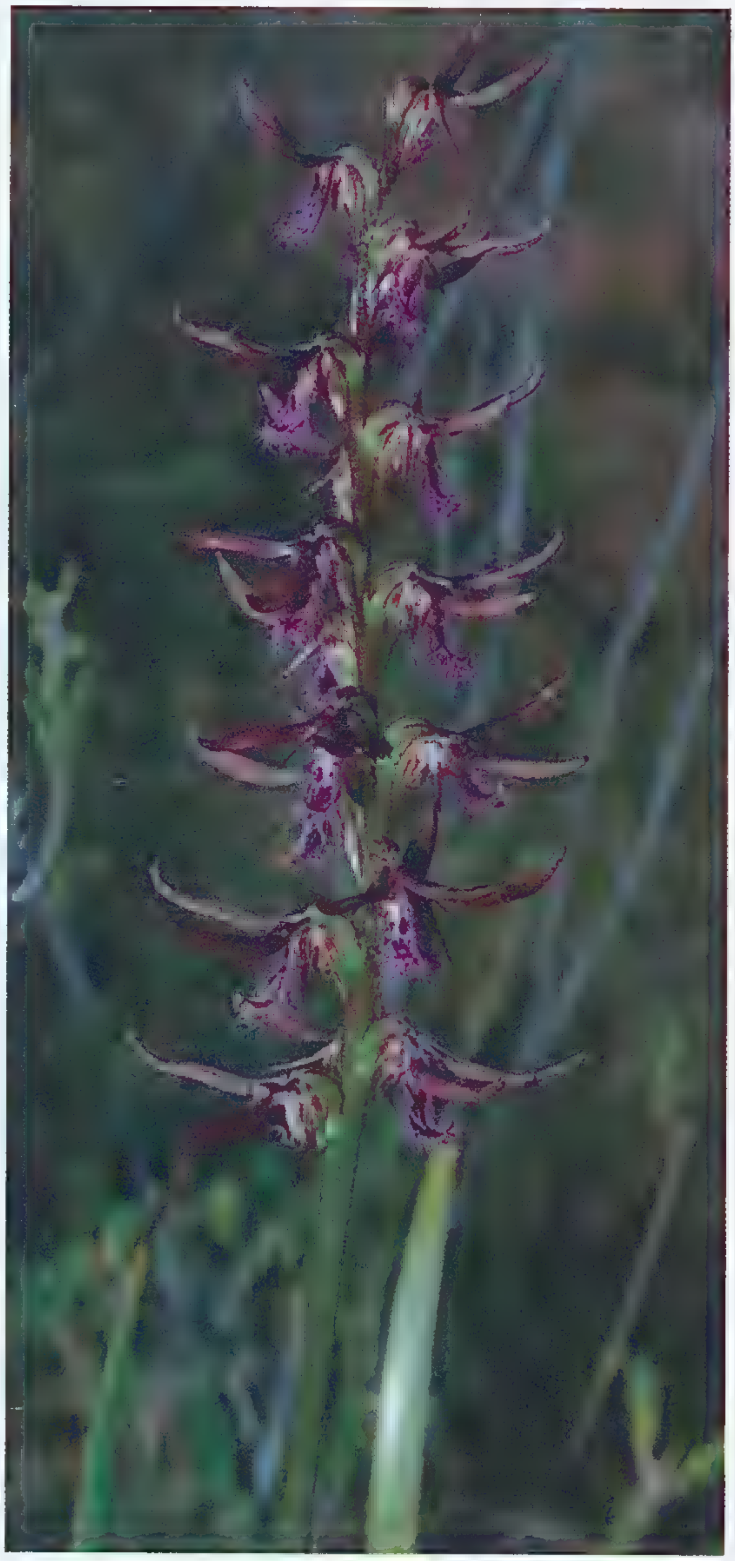
The Long and The Short and The Tall.

Alan Stephenson (affine@tpg.com.au)

For those old enough to remember, the title of this article should invoke memories of a 1959 play (later a film) written by British Playwright, Willis Hall, however it has been adapted here to fit the finding of several terrestrial orchid species recently located in the Shoalhaven area.

Orchids are well known for not conforming to a growth or flowering pattern and we who regularly search for them often have an ingrained image of what form these species should assume. I am sure all keen orchid people have encountered something different from time to time, because this gives us a reason to get out of bed each morning and I duly excuse those who do this to attend a paying job.

March of 2013 has provided three of these species and although two of them are as per normal when first seen they are far better forms of the species concerned than I have ever seen. The first was *Corunastylis superba* (*Genoplesium superbum*, Pink Midge Orchid) which is an endangered species known from three NSW sites and less than 50 plants. Just a few years ago the only Shoalhaven site was damaged during road works. The damage was repaired by me and an OEH Officer and I am pleased to report the repair is progressing well. During an annual check of this site, I and my frequent orchid companion Denis Wilson counted eight flowering plants, which is more than I have seen at one time on this site. One of the plants was of an exceptional size for the type and stood 30 cm tall supporting 19 flowers. A normal plant would be expected to carry up to 15 flowers and be 5 cm shorter which is a substantial difference for such a species.

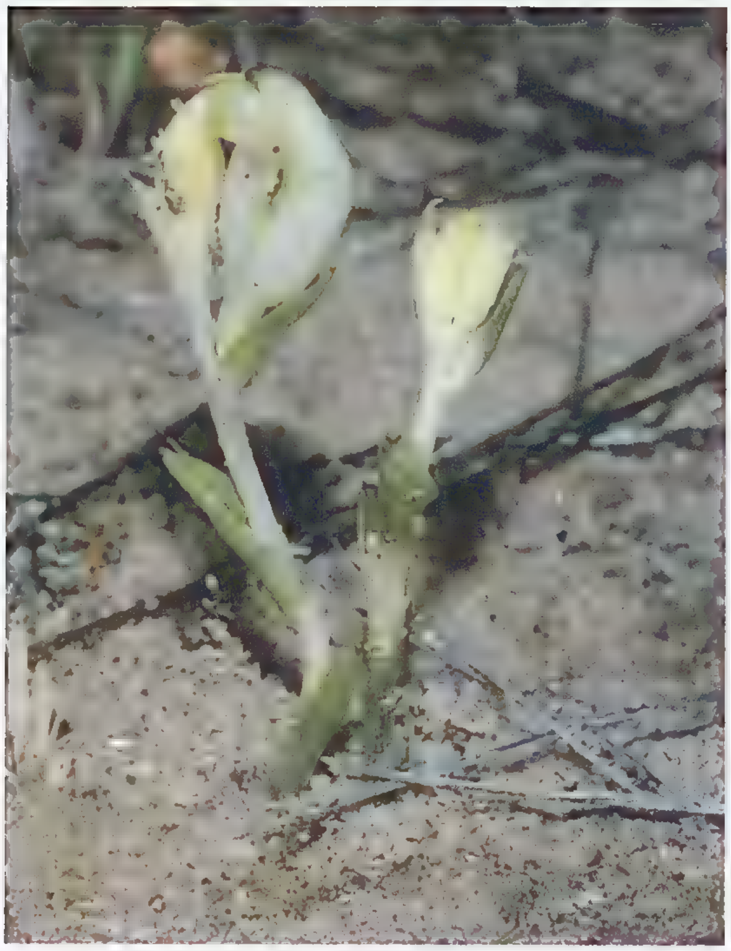


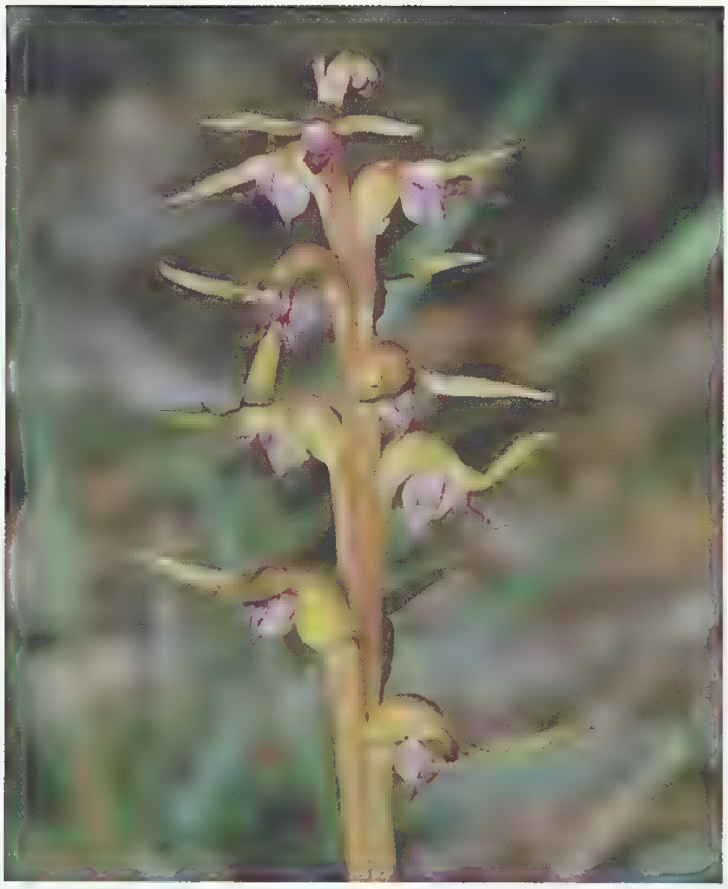
Corunastylis superba with 19 flowers and 30cm tall, 10 March 2013.

A week later during another follow-up of one site for *Genoplesium baueri* (Brittle Midge Orchid), another endangered species a plant was recorded with 12 flowers. Previously the best recorded on a plant was nine flowers. The new plant had a stem of 20 cm and an overall height of 23.5 cm and was in all respects a standout specimen.

The next find was not a larger or more floriferous than normal plant but a smaller than normal species. On the same day as the *Corunastylis superba* find, Denis Wilson and I had travelled further west to yet another cemetery. In this cemetery are several species and the original point of interest was *Corunastylis oligantha*, which were there in numbers. However, I noted a small plant of *Spiranthes australis* (14 cm) and in the process of a photo record saw an even smaller plant. Both plants were despite their size, perfectly formed specimens but the second measured a paltry 7.5 cm and was well secreted amongst the grass. A normal plant would be between 30 cm – 45 cm but it appeared this was the week for miniatures and we were more than pleased to be in the right place at the right time.

The next find was late in the month and was not a tall plant for its type but a short growing specimen and to add to the excitement/ confusion it was an Alba form. Then species is known as *Speculantha* (*Pterostylis parviflora*) but I have some difficulty listing it as *Speculantha parviflora* for two reasons. One is the description of *S. parviflora* which says the flower is green and white but often with a brown apex with the labellum tip just visible when set. Almost all plants generally known as *S. parviflora* have a brown apex and the green form is extremely rare and in the Shoalhaven limited to a handful of plants on two sites. The matter of the just visible labellum is also concerning as the vast majority of plants I have seen do not have a visible labellum. This is not a criticism of the description as I am not qualified in that area but merely an observation which indicates to me there are almost certainly more species to be named from this group.





Genoplesium baueri—12 flowers, 153mm tall on 120mm stem, 20March 2013.

However, the major point of difference with the latest find is that the two plants seen are both white and the mature plant is 30 mm tall from ground level to the tip of the galea with no labellum tip visible. What to call this plant I do not know but I will not resort to using the dreaded sp. aff. term. Larger than expected plants with more flowers should be expected occasionally and we all encounter an occasional colour variant in both terrestrial and epiphytic species during our photographic ramblings and again that is what drives some of us but this miniature gem was something special.

Speculantha 'alba'. 30mm tall, 22nd March 2013.

Colonials and *Aussies*—Australasian Orchids and Historical Notes

Phil Spence, with photographs by Greg Steenbeeke

So much time has passed since I first started growing Australian Native Orchid species, and I was asked me to reflect on my journey and experiences with these intriguing plants.

So much has changed and yet it seems such a short time. I use the words 'short time' as it has passed by so fast and it also reflects the length of time that Australian native orchids have been cultivated and recognized within the orchid world.

Most of the early native orchid growers were concentrated along the east coast of our continent and they had built their collections by just going to the bush and forests and removing plants. Some went to places like Paddy's markets in Sydney or similar places, even stalls beside the road and bought from people who have just gone to the places where the epiphytic orchids were found in abundance and ripped from their natural habitat and loaded their large 4 wheel drive truck a few days before.

A lot of these trucks were redundant army vehicles and well suited to go into any terrain.

You would often see them beside the road selling huge clumps of plants such as *Dendrobium falcorostrum* in full flower for a few shillings, and at that time not knowing any better, this was how I purchased some of my first indigenous Australian orchid plants.

It was not until ANOS was formed that pressure was brought to bear on our government of the day that this practice was slowly stopped. Not completely, as there are still a few people out there that can not resist the temptation of fast money.

I often wonder how many were not observed, for the rare variations that probably existed and are now lost e.g. *D. falcorostrum* 'Album', or ones that have a lot more red on the floral segments.

In my very early years I was told about a rich yellow *Dendrobium kingianum*, as the story goes and I will tell it as best as I can remember as it was told to me by Mr. Bert Overall who was the person who made the cross of *D.* Bardo Rose.

"The original *Dendrobium* Ellen was produced by crossing a *D. tetragonum* from Narrabeen Lakes New South Wales with a yellow *D. kingianum*." This cross was made by W. Schmidt in 1928.

W. Schmidt was deported from Australia as a POW and with him went the information about where the parents came from that he used to make this cross except what Bert Overall told me.

No plants of *D. tetragonum* exist there today. They grew on paper bark trees along the creek and this was cleared. This habitat was destroyed for a nudist colony, lime burning furnaces and a tannery. None of these exist today, I suppose you could say it was a raw deal. [ed. note.—given they were on paperbark, it is likely that these were the larger of the NSW 'tetragonum' types, now known as *D. melaleucaphilum*]

The seed for this early cross was germinated by the original old English method of using a piece of toweling that was boiled and carefully fitted over a terracotta pot that was filled with peat moss, a piece of root from each parent was placed on top of the toweling. The dry seed was sprinkled over the exposed area of the toweling. I was never told how many seedlings came from this first cross, but Mr. Overall had raised a batch of *D. speciosum* x *kingianum* then known as *D.* x *delicatum* and had about 6 plants that had been raised by this method. He was just starting to use sterile cultures with Knudson's basic formula when I first met him.

From the original *D.* Ellen cross of Schmidt's I have only ever seen one cultivar and it is more than likely there was only one plant that survived to maturity. But still today I have never seen another similar coloured cross that has been produced of that plant.

I have made *Dendrobium* Ellen several times myself, using many different parents and only get ones that do not resemble the colour of that early cross.

Once governments started to formulate rules and laws through their departments, many growers including myself went to great lengths to obtain as many different species as possible and also as many variations we could get our hands on. We soon found many plants superior to others and by self pollinating and selective sibling crossing these plants started to build a superior gene bank that is the basis of the hybrids out there today. This work was started around 1965.

As to my early crosses, many were made prior to that date and were given to a friend to give to a mate who had an associate in Melbourne. To cut it short, I never had or saw any results of these early crosses. This frustration of not knowing what was going on pushed me to find out how to do it myself, that is 'seed culture of orchids'.

I read what was published on sterile seed culturing of orchids *American Orchid Culture* (E.A. White, 1946). Other than that, it was what was published in the American Orchid Society's Bulletin. In other words, you had a very basic formula and had to make it up yourself from scratch and to do your own broad experiments on everything. Bert Overall, Ira Butler and a neighbor who was a dentist helped me get started and then I went on and perfected many things. Better formulas used different fruit and vegetable extracts, vitamins and also how to replate from one flask to another. I did not have the things of today as they were not in existence.

In turn I did teach Ira Butler how to replate a flask from one flask to another without contaminating and how to make more advanced media. This seeding and replating process was done in a flasking box that was sealed and sterilized with bleach and steam. This is very easy today compared to when I started, as it all comes in packets and there are laminar flow cabinets and other equipment. Most people who do their own flasking have no idea what troubles we had in those days.

I was sent to Papua New Guinea (PNG) to work by my employer at that time and was fortunate to be introduced to Mr. Hermon Slade who became a lifelong friend. Another special person was Mr. Peter Featherstone. These special people were also extremely clever chemists and with their highly specialized knowledge I was able to solve many of the problems that arose with the different requirements of so many genera and hybrids that I have raised. I probably would not have gone down the road that I have with orchids if it was not for their input and I regret losing them. I am still deeply moved in not having them alive today.

I had achieved many hundreds of Australian *Dendrobium* and *Sarcochilus* crosses during these years and was also making many crosses that were Australasian. As time moved on the Australian crosses were greatly reduced and the count of Australasian crosses was increased. Many of these crosses were registered and a lot of the Australian crosses grex name started with *Aussie* or *Colonial* and the Australasian ones predominately started with *Aussie's*. There was

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Lavarack, P.S. 'Bill'. 2011

This volume brings together six reports of AOF funded trips to Cape York between 1976 and 1989. Data collected on numerous other trips and new discoveries in the following years are also included. As well as providing the scientific data on the distribution of the orchids of the Peninsula, it gives a snapshot of the difficulties and rewards of working in those remote areas of Australia during that time Paperback. 180 pages.

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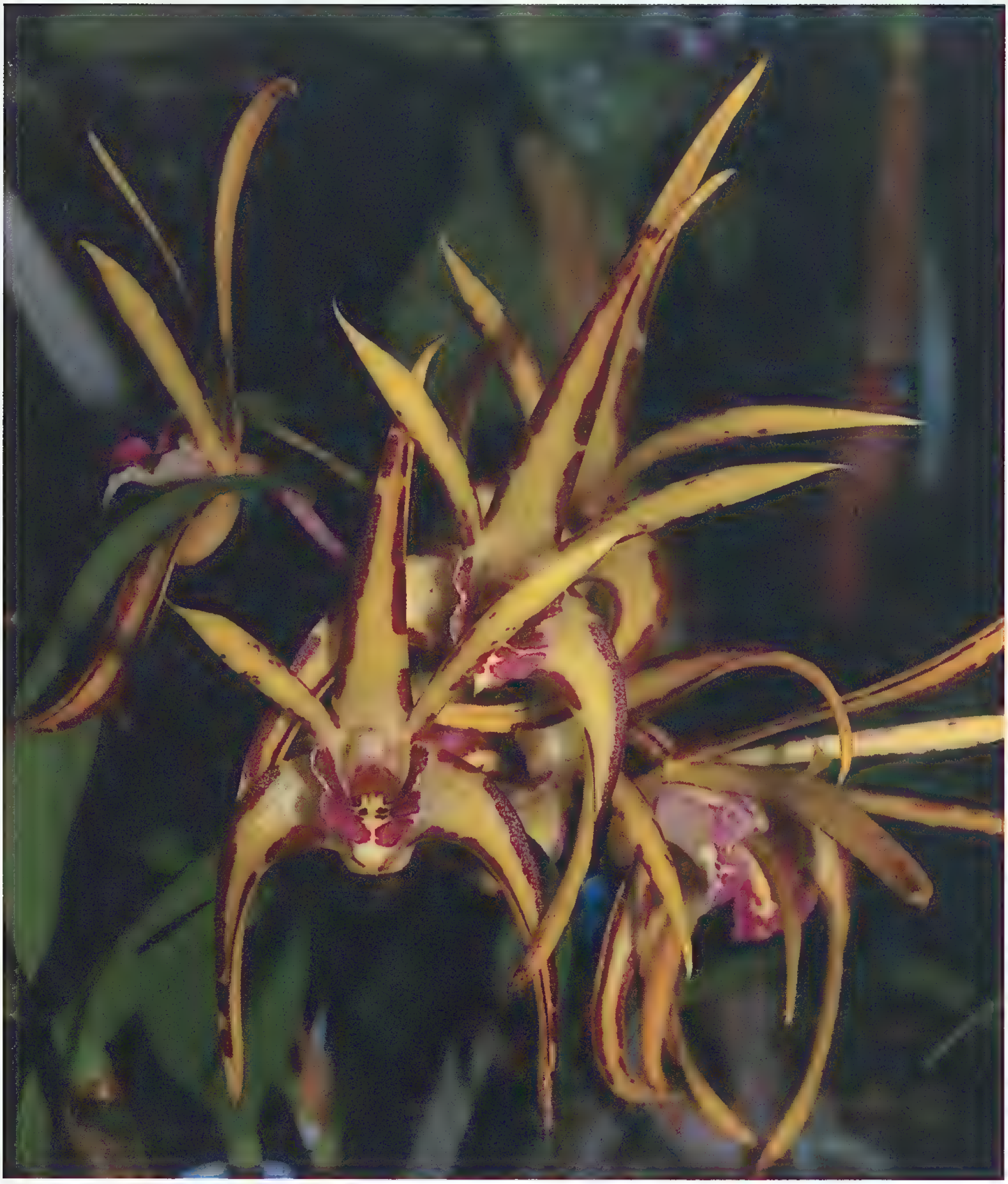


Dendrobium Aussie Parade—*D.* Aussie Ira x Star of Gold (registered by P. Spence 1987)

a reason behind this - to promote Australia in the international orchid world.

ANOS was getting to be a quite large movement throughout the country and had expanded to many groups in most states. Sydney and Manly Warringah groups had monthly meetings and members brought along their plants. Everyone participated in talking about the plants and a plant was selected for the best of the night by popular vote.

I suggested that there should be awards for some of the outstanding plants but at first this was frowned upon. I discussed this matter with the then Registrar for New South Wales Orchid Society (OSNSW) Mr. Athol Bell. He said he would talk to the OSNSW judging panel and at a later date reported back to me. His words were received by me with great joy. I still remember his words today. "The judging panel does not have a problem with ANOS starting their own judging fraternity as it is a separate organization and does not fall under our jurisdiction even though they are affiliated with the NSWOS".

I related this information to ANOS Council and it was like a bomb going off. Councilors started arguing with each other between those in favour and those against, When the dust settled and it was explained that they could if they want, but they had to create their own standards and not use the then accepted Australian Orchid Councils (AOC) judging standards. It was quickly moved and seconded that a panel of members with the knowledge to generate a set of standards be formed. After many meetings of this panel a set of standards was drawn up and then presented to ANOS Council. They liked the standards and quickly accepted them. The next step was to have them accepted by NSWOS and the AOC. These meetings were conducted in my house with the nominated person Mr Athol Bell. With minor alterations due to OSNSW and the AOC judging experience, the standards were accepted by all parties.

When you start from scratch you have to form your first panel for judging and that would normally be the full panel that did create the standards. During the end of those negotiations I was going through a big upheaval in my life - a divorce - and was not selected but pushed aside. Another person was put in my place with no explanation for this and still today I have received no reason.

Enough of that, but it still hurts.

As I said earlier, I was fortunate to go regularly to PNG for part of my work and in those early years I fell in love with the Orchids of PNG. I was able to bring back large consignments of PNG species. As time progressed and PNG gained independence from Australia I had my own Quarantine house and facility so it was just a matter of paperwork and inspections to make them legal. Not long after that, fumigation, inspections and paperwork and then 3 months or more in my quarantine house. Finally PNG was sealed by CITES and no more exports of species or hybrids were allowed by the PNG government. Since then only small numbers of orchid species have been allowed to be exported for scientific research.

Eighty to ninety percent of these plants had no name or were even described and it was impossible to get them identified, as the literature on PNG orchids was in German and Latin and there were no available drawings. Alternatively they had a common name such as 'May River Red', which is *D. lasiantheria.*

I had inspired a small group of orchid enthusiasts from Warringah Group of ANOS, several other friends from North Shore Orchid Society and from Ku-Ring-Gai Orchid Society to study the PNG Alpine Dendrobiums (section *oxyglossum*) that I had. We worked from what little information we had to try and name these species. Wal Upton even did make drawings of a few of them.

Hermon Slade had several copies of *Die Orchidaceen von Deutsch-Neu-Guinea* and offered me to take notes from one of his books at his Sydney residence. Not long after that I was very fortunate that he gave me one of his copies of this book for my birthday. At this time I was paying a person to translate the Latin from the copies I had and with this information our group was successful in identifying many of the species that I had. Several of these species are still alive today. I have also raised some of these species from seed several times.

After many years the group had become tired of the frustrations of not having drawings and slowly fell by the wayside. Not long after, I was again fortunate to receive by post from England, a list of old orchid books. Lo and behold there was a Figure Atlas to *Die Orchidaceen von Deutsch-Neu-Guinea* for sale. I just had to have it regardless of cost. A phone number was with the name of the book shop, so following a late night and a big phone bill with lots of promises and begging, I was successful in getting them to hold this important additional key book to *Die*

Sarcochilus Colonial Rose (= *hartmannii* x *serrulatus*) registered by P. Spence 1991

Orchidaceen von Deutsch-Neu-Guinea until I could get to them a international bank draft for payment. There were no credit cards or Paypal at that time.

One species that stands out over the many that we were able to name from these books is a

Dendrobium species belonging to the section *Latouria - Dendrobium aberrans*. There are so many plants out there all over the world that have been raised from the original plants that were collected from Agaun, a small mission in PNG.

What is so special about this species is that I had almost lost my original plants and was starting to regret not keeping some of the flasks that I had distributed or sold. One of these flasks I had given to the Royal Botanic Gardens Sydney, and it was to my delight that several years later when I was taking some more species there in flask for them to de-flask for their living collection it was brought to my attention how well the plants of this miniature species were doing that they had cultured from the flask of *D. aberrans*.

I quickly explained my situation and was given several large plants. These plants are what have been seeded over the last 35 years, producing many hundreds of seedlings of siblings and hybrids and I am still using them as I am writing this article.

The showing of these plants at ANOS Groups and other orchid societies became another hurdle as a lot of jealousy and political pressure was brought to bear. It was more than obvious that as I had these plants that were from Australasia and none of the other people knew anything about them and it was people like Ken Russell and Hermon Slade that stopped me from throwing in the towel.

I went on to raise so many of the PNG and Fijian species from seed and around that time I met at an orchid meeting a correspondent that now has become another lifelong friend, Dr. Geoff Stocker. Geoff and I have both worked in PNG and have similar goals with raising from seed PNG species and taking the general rarity out of culturing these species. We have taken a large number of tour groups to PNG and shown many people these beautiful orchids in their natural habitat.

The Australian native orchids that I still have are nearly all epiphytic except for my *Sarcanthinae* species and *Sarcochilus* and I still believe today do have a huge potential and if line breed or used correctly can become truly great plants to grow. With the much easier methods of doubling chromosomes most of the man-made select breeding of species are now 4N (tetraploid) where the wild plants were 2N. In turn, this one step has strengthened the flowers and has made the flowers last much longer.

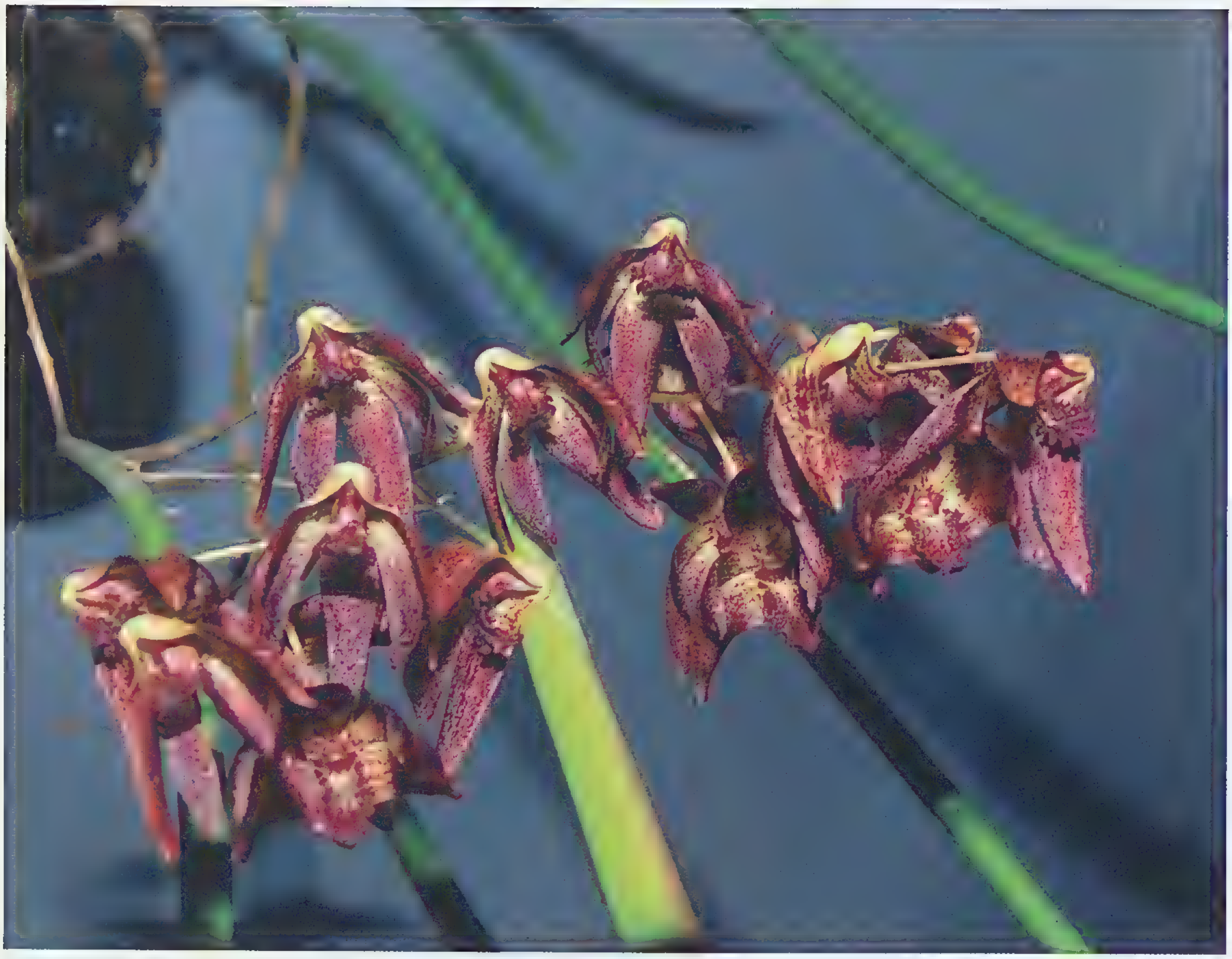
Some of the species that have been converted are *Dendrobium speciosum* and it's varieties, *D. kingianum*, *D. falcorostrum*, *D. bigibbum*, *D. lithocola*, *D. nindii* and *D. canaliculatum*, *Cymbidium canaliculatum* and several of the colour forms of *C. suave*, *Sarcochilus hartmannii*, *S. falcatus*, *S. fitzgeraldii* and many other species.

Coming back to the yellow *D. kingianum* that I mentioned in the early part of this article, it now seems possible that siblings of Ken Russell's Cream 69 are going to very important. By doubling the chromosomes the thickness of the floral segments will double and so will the colour pigmentation, cream could possibly go yellow.

As you can see I still love my Australian native orchids and I am still making crosses or working with siblings in the species. Most people will agree with this and only think Australian orchids, but they forget that many of these species were not told about political boundaries and with this in mind I have taken Australasian orchids to levels that no one had ever dreamed of and combined the best of the Australian species with many of the species from PNG.

It is now time for members of ANOS to decide if they should start to rename ANOS to the Australian Native Orchid Society or go all out in the wide world of Australasian native orchids.

As I started to divulge in my later years, I have been devoting my breeding talents and knowledge to concentrating on dendrobiums and a couple of other genera that I will not mention at this point. The section of *Dendrobium* I have been concentrating on is *Latouria* and I have made many stunning hybrids if I may say so myself. These have been produced within the section *Latouria* and



Dendrobium Hot Coals (= *D. fuliginosum* x D. *erythraeum*) Registered by P. Spence May 2011.

intersectional, mainly with sections *Spatulata, Phalaenanthe* and *Dendrocoryne* of *Dendrobium*.

Another controversial subject that should be aired - *Dendrobium* or *Dockrillia*. This will probably be argued till the cows come home but we must look at the facts.

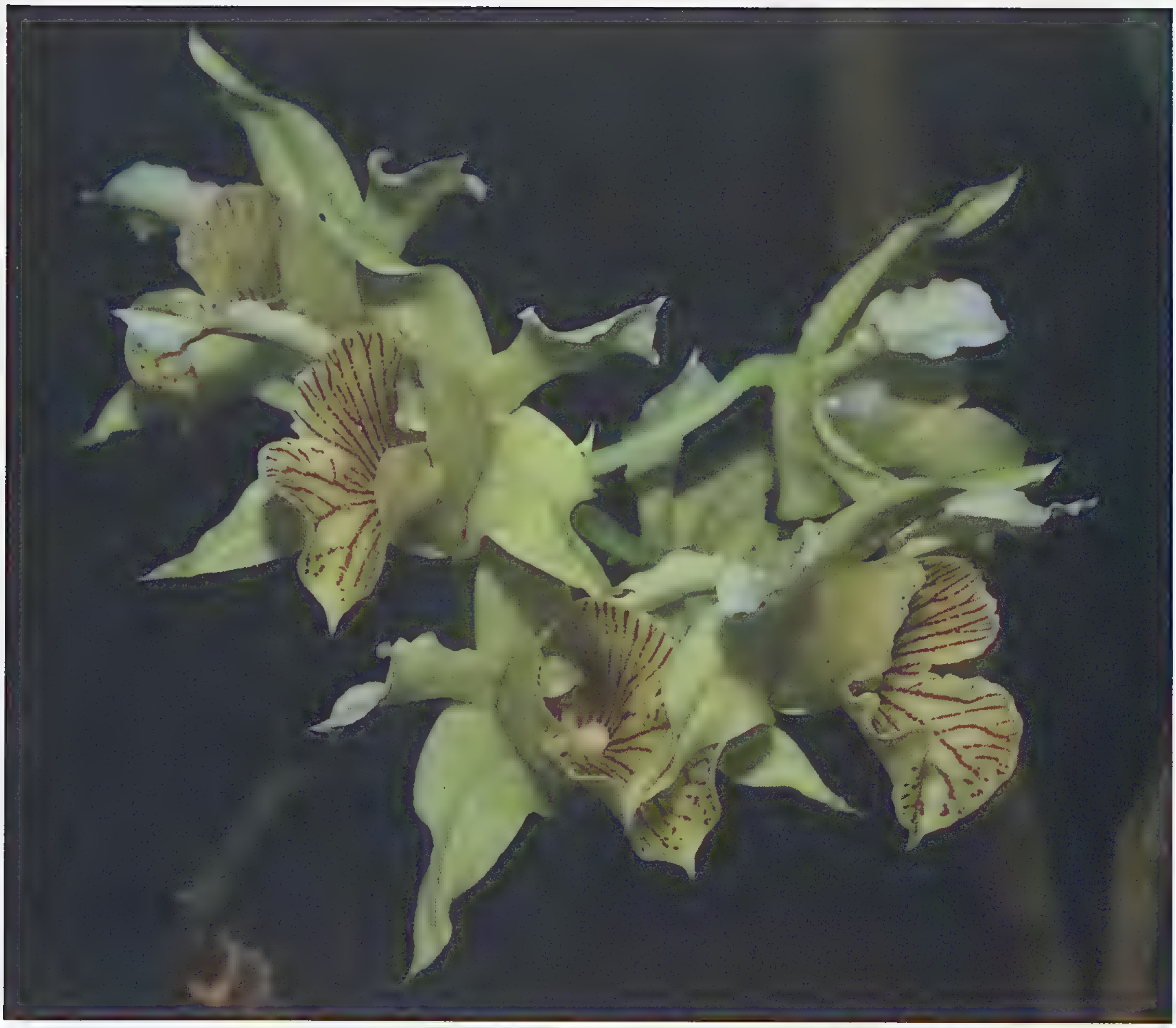
It takes much longer to flower hybrids that are crossed out of this group of species. So long in fact that many take 15 or more years to flower, about 3-4 times longer than the species used in these hybrids. My feeling is that this is "not meant to be". Australia in my mind has the best species of *Dockrillia* and the only thing lacking is the dark colours.

In the early years (around 1968-1970) I introduced two unknown species from PNG. They were called (by me) at that time D. unknown species 'Fiery Glow' and *D. teretifolium* 'Black PAM' (incidentally, PAM stood for P and M orchids, not a person). These two unknown, colourful species were introduced into the hybrids that I was making at this time and were recognized as forms of *Dendrobium teretifolium* by the Orchid society of NSW judges as colour forms and varieties of that species, regardless what I said.

It was not until Dr. Mark Clements published a paper in the first issue of a PNG botanical journal (*Lasianthera*) put out by the National Capital Botanical Gardens, Port Moresby, that these species were given a published name. This paper has become quiet controversial, but I will not go there.

The fact still remains that these early crosses that I named or were already named as progeny from *D. teretifolium* that I made with these PNG species have been used by other hybridizers and myself to produce many more hybrids that are now of world interest.

One of the most spectacular species is *Dendrobium brevicaudum* (synonym *Dockrillia*



Dendrobium Aussie's Ethos (Andreé Millar x *forbesii*), registered by Phil Spence 2009.

brevicauda). Among reasons I give this statement include colour (burnt green-gold), perfume (strongly smelling of honey), flower count, and that this species is Australian.

Within this group I yet have many species from PNG to flower, thanks to Betty Presland and her husband Peter. Maybe as many as 5 and as they flower I will if able, try to set seed. From this I will distribute them for all to have. Numbers 2 and 3 are already available from Australian Orchid Nursery. Between the efforts of the Preslands, Wayne and myself, Wayne has been able to release out about 600 seedlings of each of these species.

Unknown species Number One has proven difficult to grow from seed and a limited number of seedlings are with selective people who I do not wish to name at this point.

With this information, ANOS should look at the judging of these section Rhizobium dendrobiums (dockrillias) now and combine them into only two groups – All species and all hybrids, as the early mix-up with the naming of species used to make hybrids can never be sorted out. The species that are found within Australia and PNG are, in my mind, on an equal footing. Another alternative is to make two sections with the species Best White and Best Any Colour and similar with the hybrids, with an additional section for display on a short plant with flowers of any colour including white making a total of five classes.

A bit more about *Sarcochilus hartmannii* - changes under cultivation

K. Yin Chan and Sau-wan Chan (kyswchan@bigpond.net.au)

Introduction

It has been over 130 years since *Sarcochilus hartmannii* was collected by Charles H. Hartmann from the ranges near Toowoomba, Queensland. Over this period, this *Sarcochilus* species has become very popular amongst orchid growers and has performed consistently well in many orchid shows in Australia as well as overseas. Under cultivation, plants are subjected to a different set of selection pressures compared to those occurring in nature and hence changes with time are expected. It is interesting to establish if the modern day specimens of *S. hartmannii* found in Shows and collections are any different from those initially collected from their natural habitats and if so, what are the attributes involved. This paper documents the success of *S. hartmannii* in winning Show awards and attempts to identify as well as to quantify the changes in attributes of this orchid species under cultivation with time.

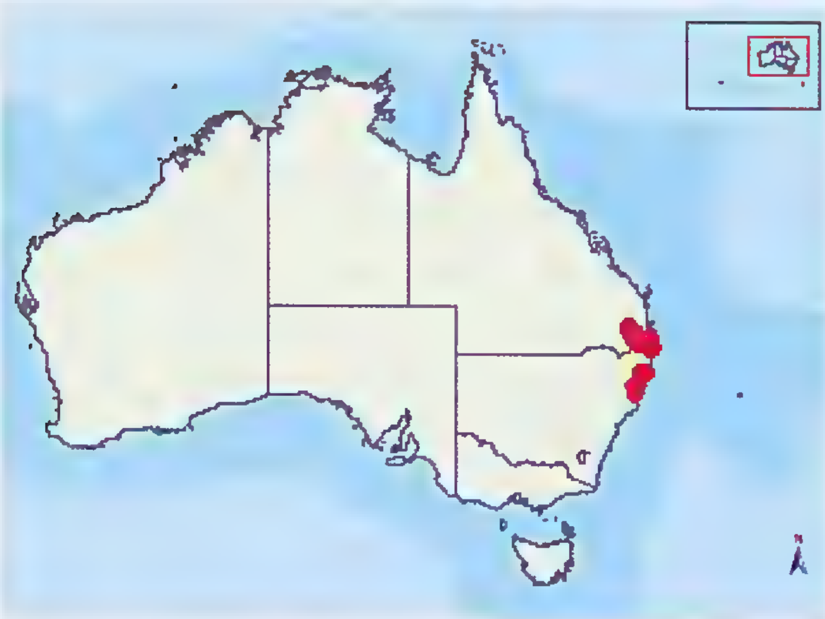


Figure 1. Indicative distribution of *Sarcochilus hartmannii* (from Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities).

The most awarded Sarcochilus species

Sarcochilus hartmannii has the honour of winning the first ever quality award conferred by Australasian Native Orchid Society (ANOS). In 1989, *S. hartmannii* 'Noelene' together with *S. hartmannii* 'Red Snow' were both awarded a HCC (Highly Commended Certificate) by ANOS in the Sydney ANOS Group Sarcanthinae Show in Baulkham Hills. So far, it is the most awarded Sarcochilus species by the Australian Orchid Council (AOC). Out of a total of 40 quality awards (HCC and better) conferred to *Sarcochilus* species between 1979 and 2011, 28, i.e. 70 % were won by S. *hartmannii* with *S. falcatus* in the second place with only 4 awards (Table 1). For ANOS, between 1989 and 2012, a total of 6 quality awards were awarded to *Sarcochilus* species and *S. hartmannii,* together with *S. falcatus,* were each awarded thrice. A search through a world orchid database (Orchidwiz 2009) indicates that *S. hartmannii* is the most awarded *Sarcochilus* species worldwide. *Sarcochilus hartmannii* has won 73% of all the quality awards conferred to the different species of *Sarcochilus* between 1979 and 2008 (Table 1).

Natural forms

Sarcochilus hartmannii is a species endemic to Australia with a very restricted geographical distribution. It is found only in the border region between northern NSW and southern Queensland (Fig. 1). It is found growing on boulders on cliff faces at 500-1000m altitude between the north of Bellinger River, NSW (30° 20'S)and Gympie West, Queensland (26° 10'S) (Upton 1992; Jones 2006). Therefore this does not include those found between the south of Bellinger River and the Manning River which were previously known as the southern form of *S. hartmannii* but has become a new species, namely *S. aequalis* since 1991 (D.L.Jones & M.A.Clem., 1991).

It is a very variable species in terms of plant habit as well as size, shape and colour of the flower (Dockrill 1992; Jones 2006). Different recognizable forms of this species can be found in different locations within the region of natural occurrence. According to Russell (2010), there are five different forms found in five specific locations, namely Dorrigo - Clarence River Catchment; Nightcap Range Mount Burrell – Blue Knob; Numinbah – Tweed—Lamington Range; Mt Lindesay – McPherson Range and Mt Barney—Toowoomba—Gympie West. Those plants of *S. hartmannii* found in each area have certain broadly distinguishable characteristics. For example, those found in the Numinbah Valley tend to have large flower size and are characterized by their red centre (Gregory 1978; Russell 2010) while natural clones from the Blue Knob area are known for their excellent shape (Gregory 1978).

However, it is worthwhile noting that plants found within each of the areas can be very variable in plant form, flower shape and size and therefore quality. As pointed out by Banks (1988) "A lot of superior clones came off Blue Knob ... but so did a lot of ordinary ones".

In the wild, S. *hartmannii* is under threat from human interference in a number of ways, namely land clearing, fire, weed infestations and over collecting. It is believed that the natural form of S. *hartmannii* from the Blue Knob area is now extinct. S. *hartmannii* is regarded as a 'vulnerable species' under both the NSW and the Australian Federal legislation.

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Changes under cultivation

Like any other plants, once brought under cultivation from the wild, changes are expected with time when they were subjected to a different set of selection pressures. To start with, it is logical to expect that the more superior natural clones were selected from the wild, namely those with better quality flowers and higher vigour. Then once under cultivation, only those plants that can adapt and thrive under culture conditions would survive. In addition only the better clones, those with sought after characteristics, such as quality of the flower and floriferousness will be retained and propagated, with the rest gradually disappearing from collections. Furthermore, changes in *S. hartmannii* occur under cultivation because of continuous efforts of crossing different clones by the breeders, namely by intra-specific breeding.

In this investigation, an attempt was made to distinguish the natural clones from the artificial clones of *S. hartmannii* and in the latter case, their breeding history. Unfortunately details of such intra-specific breeding have not been documented fully and very often the parentage of many of the artificial clones cannot be established. In many instances, clone names and parentage of awarded specimens have not been included as this is not mandatory. In many cases, we had to consult hybridizers and owners of the clones to obtain the information.

Examination of the Award Database of AOC (AOC 2012) indicated that the early awardees were mainly natural clones but with time, these were then dominated by artificial clones, products of crossing between different clones, natural and/or artificial. Using the data recorded by AOC Award Database between 1979- 2011 on awarded *S. hartmannii* specimens, changes in flower quality attributes such as flower size,

Table 1 Number of quality awards* conferred by different Orchid Societies to S. *hartmannii* and other Sarcochilus species

Sarcochilus species	AOC (1977-2011)	ANOS (1989-2012)	Worldwide (1979-2009)
S. hartmannii	28	3	36
S. fitzgeraldii	3	0	5
S. falcatus	4	3	3
S. ceciliae	3	0	3
S. olivaceus	2	0	2
Total	40	6	49

* Awards of HCC, AM and FCC.

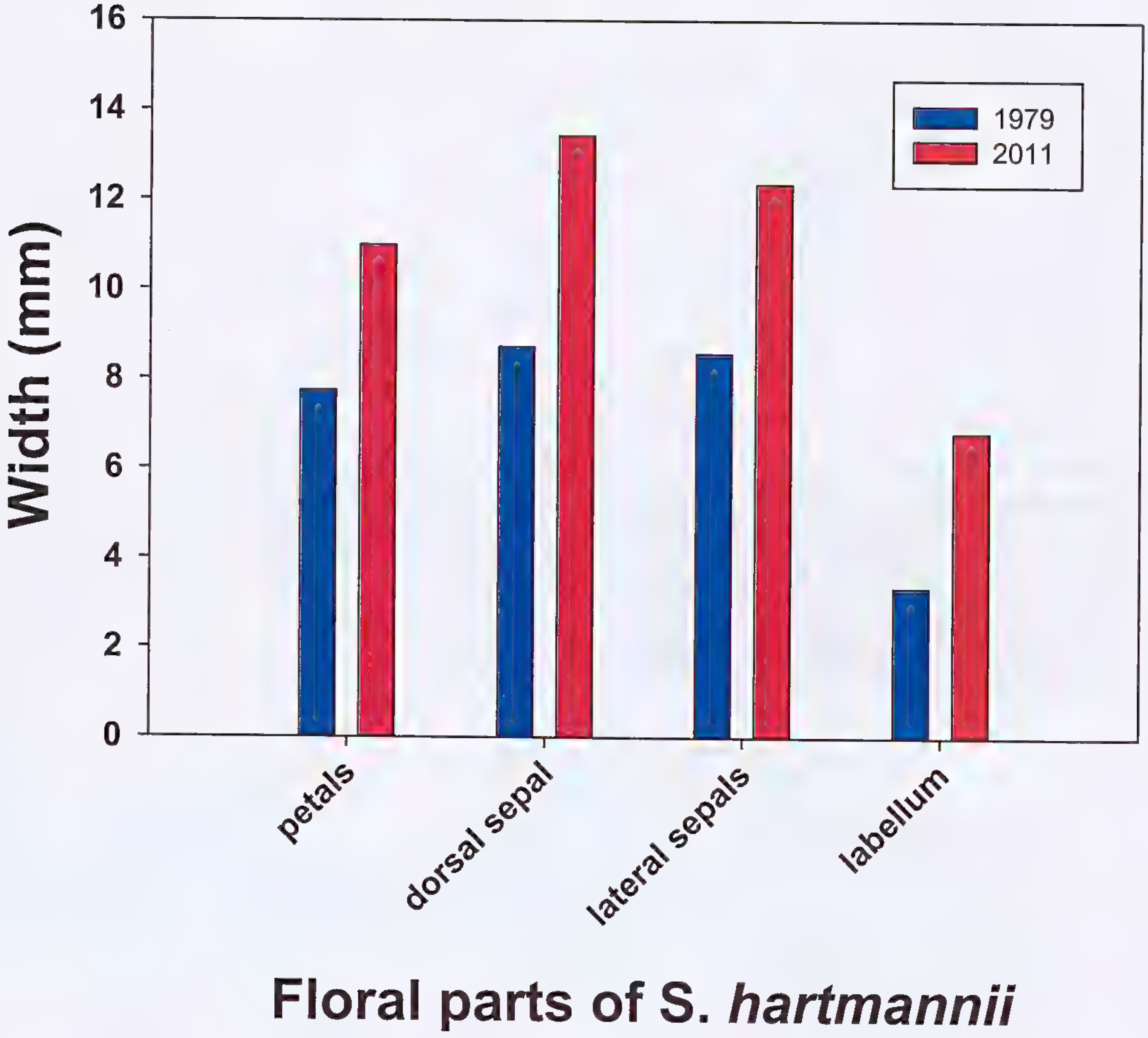

Figure 2 Comparison of changes in the width of petals, dorsal sepal, lateral sepals and labellum of *S. hartmannii* over the period of 1979 to 2011.

length and width of tepals and dimension of the labellum over the past 32 years were investigated using statistical analyses.

The analyses indicate, based on the awarded clones of S. *hartmannii*, over the last 32 years (1979-2011), while the size of the flowers of this species has not changed (remains at an average of 27 mm width), there have been steady increases in the width of petals, dorsal sepal and size of labellum. As shown in Fig. 2, percentage increases in the width of petals, dorsal sepal and size of labellum of S. *hartmannii* were respectively 41, 54, 44 and 104 over this period. In the case of dorsal sepal, the average width has increased from 8.7 mm to 13.4 mm. At the same time, the width of the labellum has doubled, from 3.3 mm to 6.8 mm.

Overall, compared to the earlier clones, flowers of the modern day clones of S. *hartmannii* are more filled- in and have larger labellum. This is evident when comparing examples of early awardees (e.g. *S. hartmannii* 'Noelene'; *S. hartmannii* 'Kerri') with the recent ones (e.g. *S. hartmannii* 'Snowbert'; *S. hartmannii* 'Beverly') (Figures 3 and 4).

Flower colour of the tepals (while remaining predominantly white) and the flower centre varies amongst the different awarded clones over the years, from nearly pure white (e.g. *S. hartmannii* 'Roberta' HCC/AOC 2007(NSW)) to spotty ones (e.g. *S. hartmannii* 'Jude' AM/AOC 2011(NSW)) to nearly full colour of red/ brown (e.g. *S. hartmannii* 'Red Cloud' AM//AOC 1997 (NSW)). There does not appear to be any clear trend of change over time.

It is clear that the main change in *S. hartmannii* in the last 30 years has been the flower shape with the tepal segments becoming wider and therefore resulting in a more filled- in shape. There has also been an effort to avoid "a common deformity of rolled edges on the lateral sepals" (Roper, pers. comm.).

The future of *S. hartmannii*

It is timely to take stock in relation to the direction of future breeding program for *S. hartmannii*. It may not be wise to continue with the current trend of increases in tepal segment width as there are considerable overlapping of the sepals and petals in the current clones (Figures 3 and 4). The fact that no change in flower size has occurred in the past 32 years may mean this attribute has been neglected by the breeders. However, the desirability of size increase of flowers needs to be considered.

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Despite of other changes, the quality of flower colour, the glistening whiteness should be retained and even enhanced if possible. When *S. hartmannii* is in bloom, the iridescent flowers have been regarded as "one of the most beautiful sights of our local orchid world" (Gregory 1978). It was possibly this sight that caught the eyes of Mr. Hartmann over 130 ago when he collected this orchid!

In fact, the history of changes of *S. hartmannii* under cultivation is a success story of its conservation, with concerted contributions from orchid enthusiasts, growers and hybridisers. Today, it is safe to say many of the specimens of *S. hartmannii* in collection are of more superior forms in flower quality than those in the natural habitats. With improved culture, it is commonly regarded as an easy to grow orchid and is easily available from nurseries. It is more likely for someone to spend a few dollars to purchase a *S. hartmannii* seedling of guaranteed quality than risking his life to pick one in the wild (Linney 1984).

Acknowledgements

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Literature cited

AOC (2012) Awards database. http://www.orchidsaustralia.com/aoc_judging.html

ANOS (2011) Awards recipients. http://www.anos.org.au/judging/award-recipients/

Banks D (1988) *Sarcochilus hartmannii*, its distribution and cultivation. *Australian Orchid Review*, p.55-56, spring issue.

Chick B (1968) *Sarcochilus hartmannii* F. Muell. *The Orchadian* **2(11)**:139.

Department of Sustainability, Environment, Water, Population and Communities (2013) *Sarcochilus hartmannii* in Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed Sun, 28 Jul 2013 22:25:02 +1000.

Dockrill AW (1992) *Australian Indigenous Orchids*, Surrey Beatty & Sons, Sydney.

Jones D (2006) *Sarcochilus hartmannii* in *A complete Guide to Native Orchids of Australia, including the Island Territories*, p. 449, Reed New Holland, Australia.

Gregory T (1978) Some thoughts on *Sarcochilus hartmannii* F.Muell. *The Orchadian* **6(1)**:8-9.

Linney D (1984) Wonderful *Sarcochilus hartmannii* 'Blue Knob'. *Australian Orchid Review*, p. 188, September issue.

OrchidWiz (2009) OrchidWiz Encyclopedia 8.01, OrchidWiz Orchid Database Software, USA.

Russell K (2010) *Sarcochilus hartmannii* in the wild. *Proceedings of Sixth Australasian Native Orchid Conference and Show*. p.94-96, August, 2010, Newcastle, NSW.

Upton W (1992) *Sarcochilus hartmannii*. In *Sarcochilus Orchids of Australia*, p.26-34, Double U Orchids, Australia.

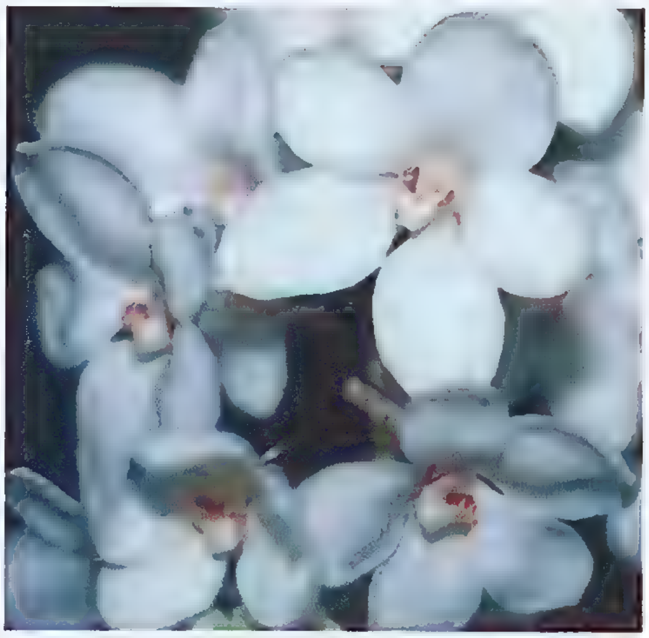
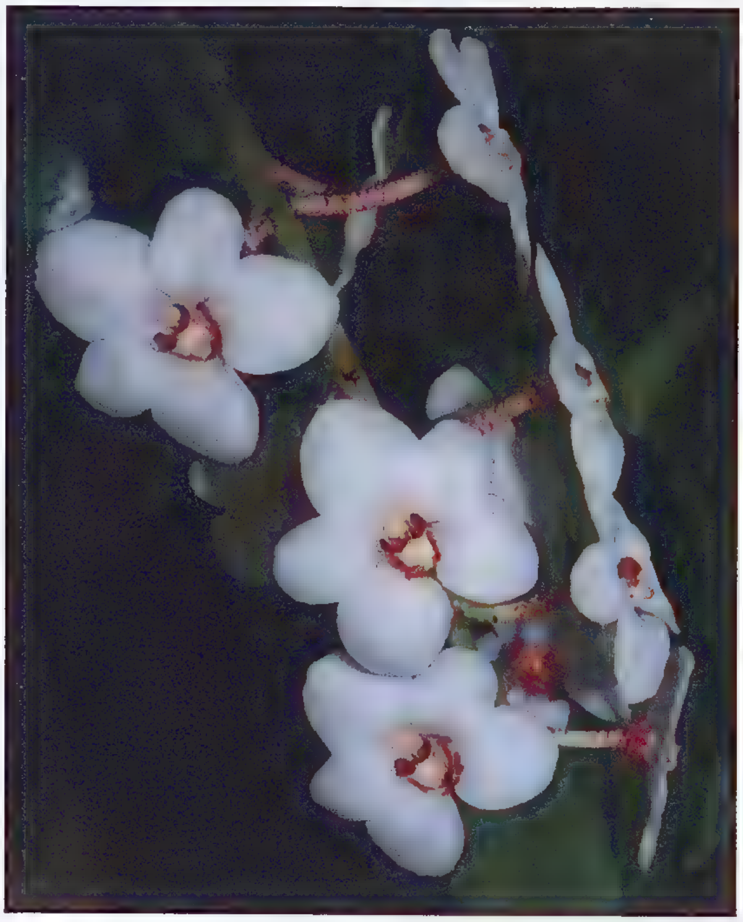


Figure 3. *Sarcochilus hartmannii* 'Kerri' AM/AOC 1979 (Photograph from AOC website)

Figure 4. *Sarcochilus hartmannii* 'Snowbert' AM/AOC 2008 (Photograph by Greg Steenbeeke)



Response of Orchids to the 2009 Black Saturday Bushfires

Text and Photographs by Mike Duncan (unless otherwise mentioned)
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Orchids are popular with the community, and following the 2009 Black Saturday bushfires, the Victorian Government was keen to address community concerns about how orchids faired, by documenting the range of responses across all fire affected areas. This article is a summary of a report titled "Response of Orchids to Bushfire: Black Saturday Victoria 2009 - natural values fire recovery program". It was funded by the Victorian government's bushfire recovery program, co-ordinated by the Victorian Bushfire Recovery and Reconstruction Authority. The project was undertaken by the Arthur Rylah Institute, with the assistance of volunteers. The full report is available at: http://www.depi.vic.gov.au/fire-and-other-emergencies/bushfire-recovery/active-recovery-program/natural-values.

The 2009 bushfires occurred at the end of a 10 year drought, during an extremely hot and windy period of weather. As in all large fires the 2009 bushfires were a mosaic of intensities, damage, and responses (Figure 1). At one end of the scale the fire was incredibly intense, burning crowns and killing trees, while at the other end the fire trickled through the landscape burning only the litter layer. Other areas escaped the fire altogether and survived as small 'islands of green'.

Victoria's orchid flora is remarkably rich, with more than 360 recognised species, 110 of which are endemic to the state (Jeanes and Backhouse 2006). Due to the huge diversity in orchid morphology, biology and ecology, the only absolute rule about Victorian orchids is that

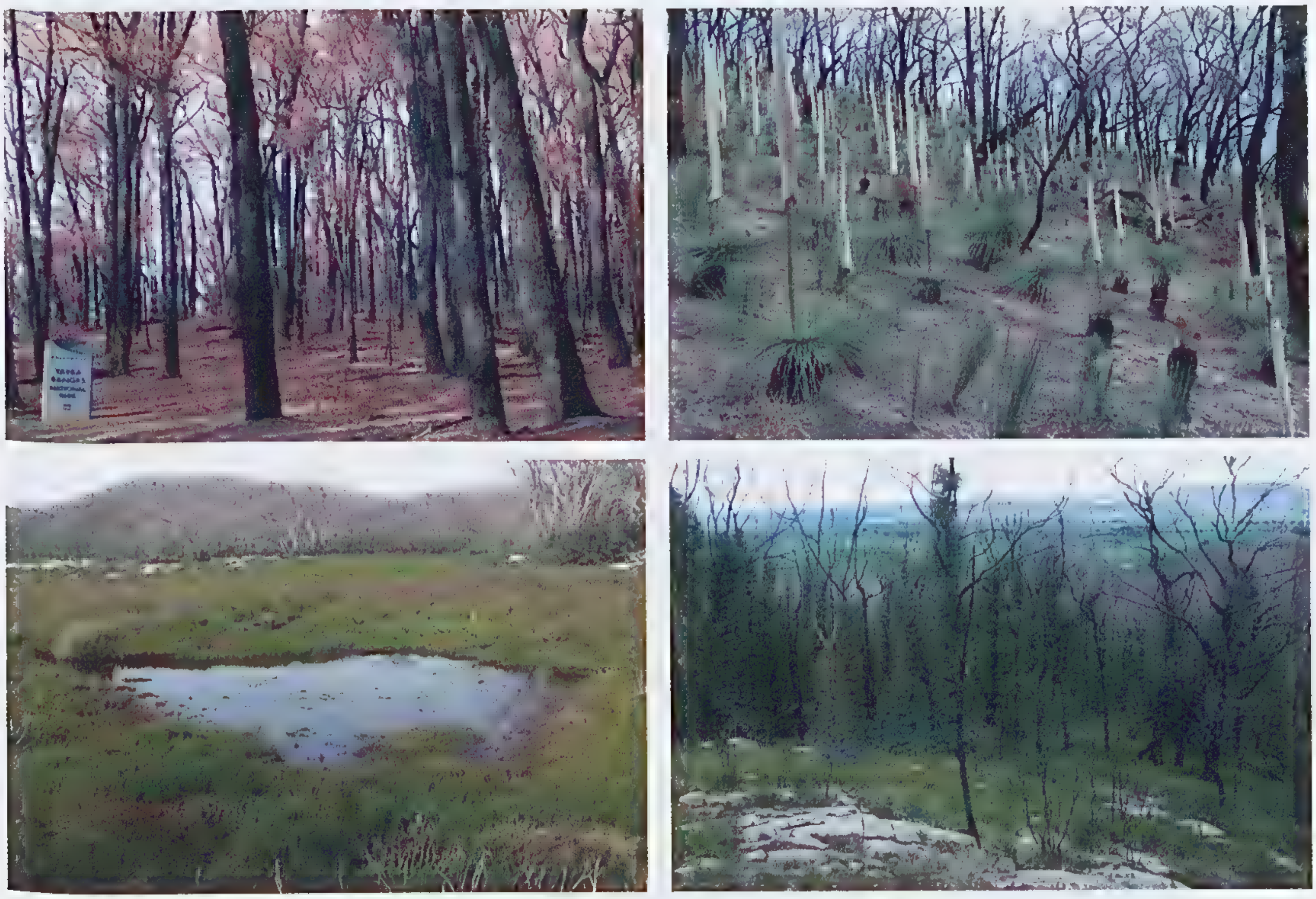

Figure 1. Clockwise from top left, areas of Yarra Ranges, Kinglake, Lake Mountain, and Bunyip that were burnt during the 2009 bushfires.

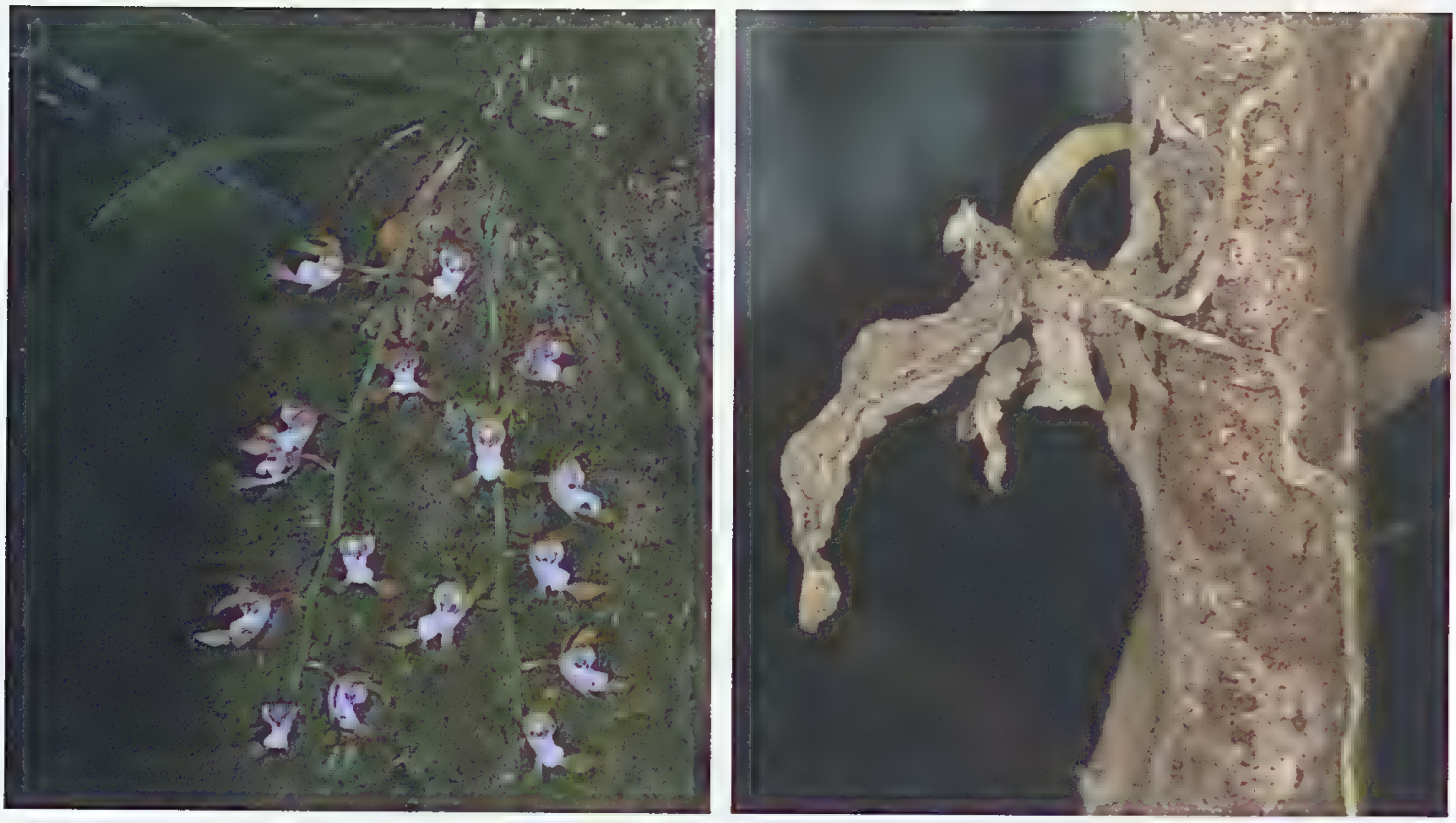

Figure 2. *Sarcochilus australis* plant with two flowering scapes (left), and a dead plant following the 2009 bushfires (right). Both pictures were taken in Kinglake.

there's an exception to every rule. For example, Victorian orchids are dormant over summer and flower during spring – no, it's possible to see an orchid in flower every day of the year somewhere in Victoria. Terrestrial orchids sprout from a small underground tuber – no, not always, some grown from a rhizome. Victorian orchids are stimulated to flower following a fire – no, not always. In fact, the response of orchids to bushfire covers the spectrum from totally dependent upon fire to flower, to being killed by fire (Brown *et al.* 2008, Jones 2006, Backhouse and Jeanes 1995, Bates and Weber 1990). However, the fire response of most Victorian orchid species falls somewhere in between. For the purposes of this study, I have divided the spectrum of orchid responses to bushfire into five broad categories:

Fire Killed Species
Fire Sensitive Species
Fire Neutral Species
Fire Stimulated Species
Fire Dependent Species

In this article I will give a broad overview of the effects of the 2009 bushfire on each category, along with a few examples to illustrate how particular species have responded to the fire.

1. Fire Killed Species

Relatively few of Victoria's orchid species are killed when exposed to a bushfire. These species tend to fall into two groups. Firstly, there are the evergreen epiphytic and lithophytic species that grow in trees or on exposed rock surfaces. All plant parts are aerial and therefore at risk of being burnt during an intense bushfire. The second group consists of (generally) small terrestrial orchids whose tubers occur in the leaf litter or in the first few centimetres of the soil. As a result, their tubers are highly susceptible to being burnt and killed in a bushfire.

Prior to the 2009 bushfire, *Sarcochilus australis* grew on the branches of *Coprosma quadrifida* and *Pomaderris aspera* shrubs in cool temperate rainforest gullies and adjoining wet sclerophyll forest on the southern slopes of Kinglake National Park (Figure 2). Rainforest gullies such as these often escape summer bushfire due to their position in the landscape and higher moisture levels in the vegetation and soil. However, the severity of the 2009 bushfire meant that these rainforest gullies were intensely burnt. Examination of *S. australis* populations in Kinglake occurred in 2009 and

2010 and found no surviving plants. In most cases the orchid, host branch and host plant had been consumed by the fire, but in a few cases there was evidence of a dead, burnt plant on some shrubs (Figure 2). The host plants will regenerate, but it will take time. As a result, it is likely that the natural recovery of *S. australis* in Kinglake will be slow, and this species may benefit from conservation intervention to assist it to return to pre-fire levels. Hopefully, some *S. australis* plants have survived in unburnt pockets of rainforest somewhere in the Kinglake area, and will be able to act as a seed source for its recovery.

2. Fire Sensitive Species

Some orchid species are inhibited by bushfire, rather than killed. In particular, many autumn and winter flowering orchid species suffer a reduction in flowering for one or more seasons following a fire (Jones 1988). Historically, *Acianthus*, *Corybas*, *Corunastylis* and *Pterostylis* species have been reported to be inhibited by fire, recovering after the surrounding bush recovers (Jones *et al.* 1999; Backhouse and Jeanes 1995). However, while the response of these orchids has been quite variable, this was not strictly observed in the first two years following the 2009 bushfire. For example, *Acianthus pusillus* flowered in good numbers in Bunyip State Park and Wilsons Promontory, as did *A. caudatus* at Bunyip, Wilsons Promontory and Won Wron. Similarly, several *Corybas* species (*C. aconitiflorus*, *C. diemenicus* (Figure 3), *C. fimbriatus* (Figure 3) and *C. unguiculatus*) flowered well in Wilsons Promontory, and appear to have been unaffected by the bushfire. On the other hand, *Corunastylis despectans* has not been seen at sites in Kinglake since the 2009 bushfire, suggesting that flowering has either been inhibited, or that some individuals were killed by the often very intense fire.

Jones and Clements (2002) reported that flowering by *Pterostylis* species is suppressed by hot summer fires, until a suitable microhabitat

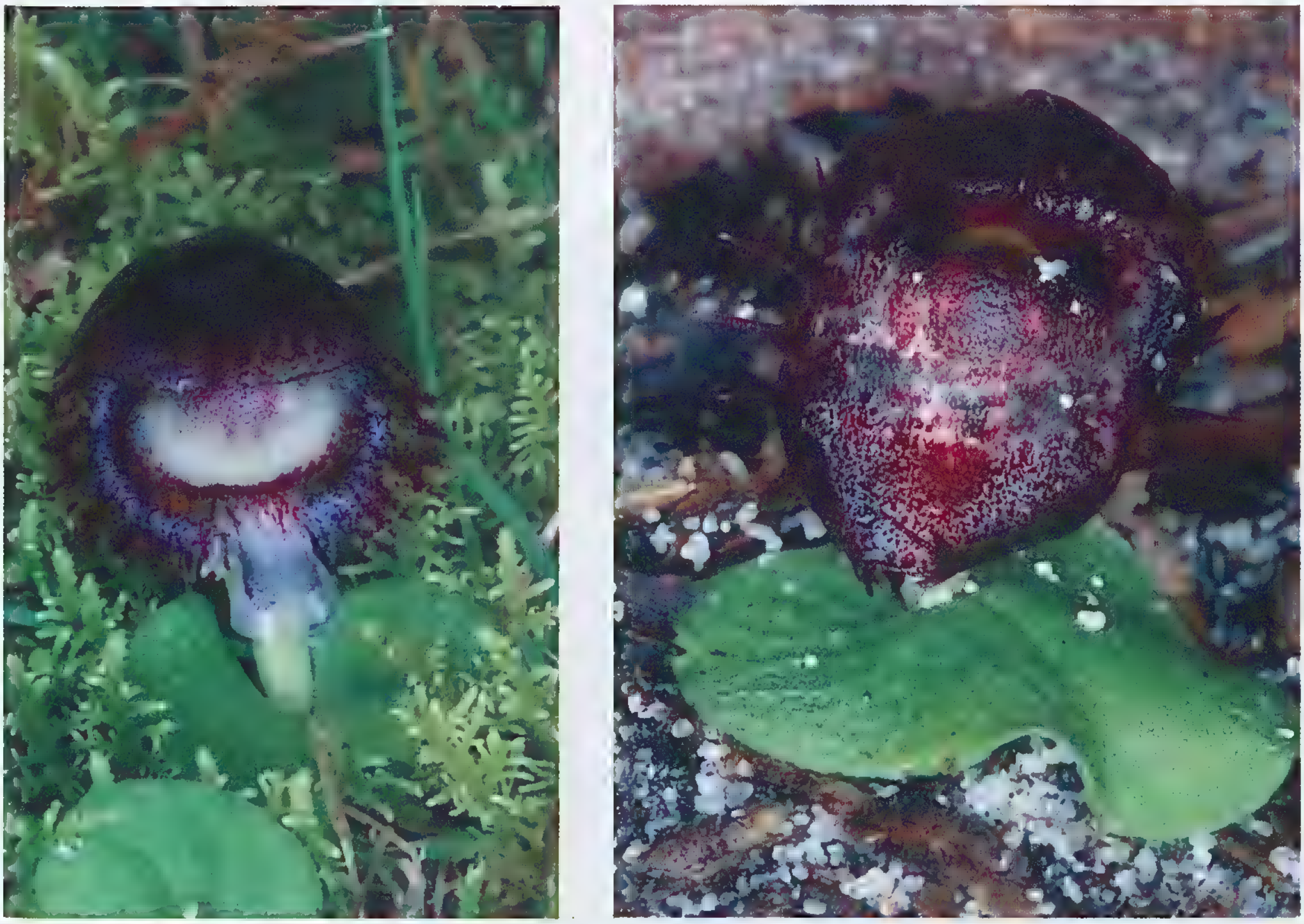

Figure 3. *Corybas diemenicus* (left), and *C. fimbriatus* (right), flowering in Wilson Promontory following the 2009 bushfires.

returns. In particular, it is believed that the autumn flowering *Pterostylis* species are often negatively impacted in the first few years after a fire (Jones and Clements 2002). Numerous autumn flowering *Pterostylis* species occur in the areas affected by the 2009 bushfire. For example, *P. alveata* at Wilsons Promontory showed a lower flowering rate than had been observed prior to the bushfire. Similarly, the flowering of *P. grandiflora* in Won Wron appeared to be negatively impacted at some sites. On the other hand, the flowering of *P. striata* and *P. sanguinea* at Wilsons Promontory, and *P. parviflora* at Bunyip, Kinglake and Wilsons Promontory appeared to be as normal.

3. Fire Neutral Species

Pterostylis is a large and diverse genus. While some autumn flowering *Pterostylis* species are inhibited by summer bushfire, many winter and spring flowering *Pterostylis* species are generally considered to be fire neutral. That is, they survive the fire, and their flowering neither increases or decreases in the years following the fire. The flowering of species such as *P. tasmanica*, *P. cucullata* subsp. *cucullata* and *P. foliata* at Wilsons Promontory, *P. nana* at Won Wron, *P. nutans* and *P. pedunculata* at Mt. Jack, Wilsons Promontory and Won Wron, *P. monticola* at Lake Mountain (Figure 4), and *P. alpina* at Mt. Jack were all unaffected by the 2009 bushfire. However, there was an exception, with the flowering of *P. alpina* populations inhibited in northern section of the Mt. Disappointment (Kinglake). This area was severely burnt and this appears to have taken its toll on the *P. alpina* populations, with only a few scattered individuals flowering in the first two years following the bushfire. This may be due to the direct impact of the intense fire on *P. alpina* tubers, but it may also be due to the indirect impact of the fire removing much of the pre-existing overstorey and understorey. This may disfavour the flowering of this species, as *P. alpina* usually grows in protected, damp sites (Backhouse and Jeanes 1995). If this is the case, it can be expected that the *P. alpina* population will recover in the coming years.

Three members of the Tall Greenhood (*P. longifolia*) complex occur within the area affected by the 2009 bushfire: *P. chlorogramma* at Bunyip and Wilsons Promontory, *P. melagramma* at Bunyip, Mt. Jack and Won Wron, and *P. tunstallii* at Wilsons Promontory.

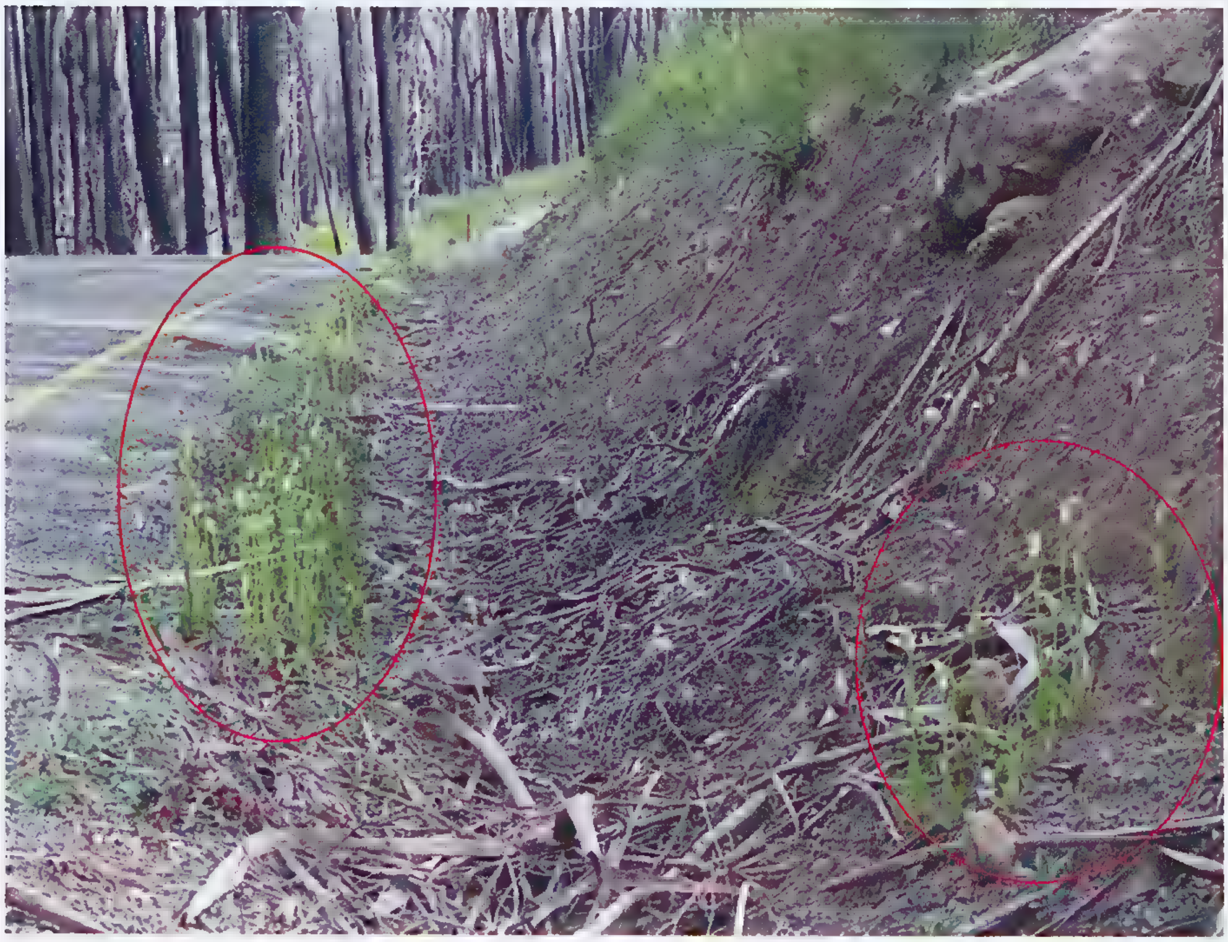

Figure 4. *Pterostylis monticola* plants (circled) flowering on the roadside at Lake Mountain (January 2011), following the 2009 bushfires.

All of these species generally showed a neutral response to the bushfire, flowering as if the fire had not occurred. *P. chlorogramma* is Nationally listed as a Vulnerable species, and as such populations of this species at both Bunyip and Wilsons Promontory have been monitored prior to and following the 2009 bushfire. As a result it was possible to quantify the post-fire flowering response of this species. At Wilsons Promontory, the number of emergent *P. chlorogramma* plants did not vary greatly before or after the 2009 bushfire. Conversely, at Bunyip, the number of emergent *P. chlorogramma* plants showed a large change following the bushfire. At this site, the number of emergent plants was >30 for the two years prior to the bushfire, while the number of emergent plants was <10 for the two years since the fire. Many of the *P. chlorogramma* plants at this site occur in the shallow soil around the edge of flat granite outcrops, and as a result their more shallow tubers may have been impacted by the high intensity of the bushfire, leading to an inhibition of flowering. Ongoing monitoring of this population will be necessary to determine if these plants are dormant or were killed during the 2009 bushfire.

4. Fire Stimulated Species

Many Victorian orchid species not only survive a fire, they have adopted fire as a major component of their life cycle, flowering more profusely following a summer bushfire (Jones 1988, 2006, Coates and Duncan 2009, Calder *et al.* 1989). In particular, a number of large Victorian orchid genera including *Caladenia*, *Diuris*, *Prasophyllum* and *Thelymitra* respond positively to bushfire, and these post-fire floral displays can be an impressive sight. Orchids are often more robust in the burnt ground (due to increased light reaching the ground, and increased nutrient availability in the mineral-rich ash bed), and they are often more visible once the surrounding vegetation has been removed (Jones 1988).

Three Nationally threatened *Caladenia* species (*C. concolor*, *C. orientalis* (Figure 5) and *C. tessellata*) occur within the area affected by the 2009 bushfire, and their flowering rate has

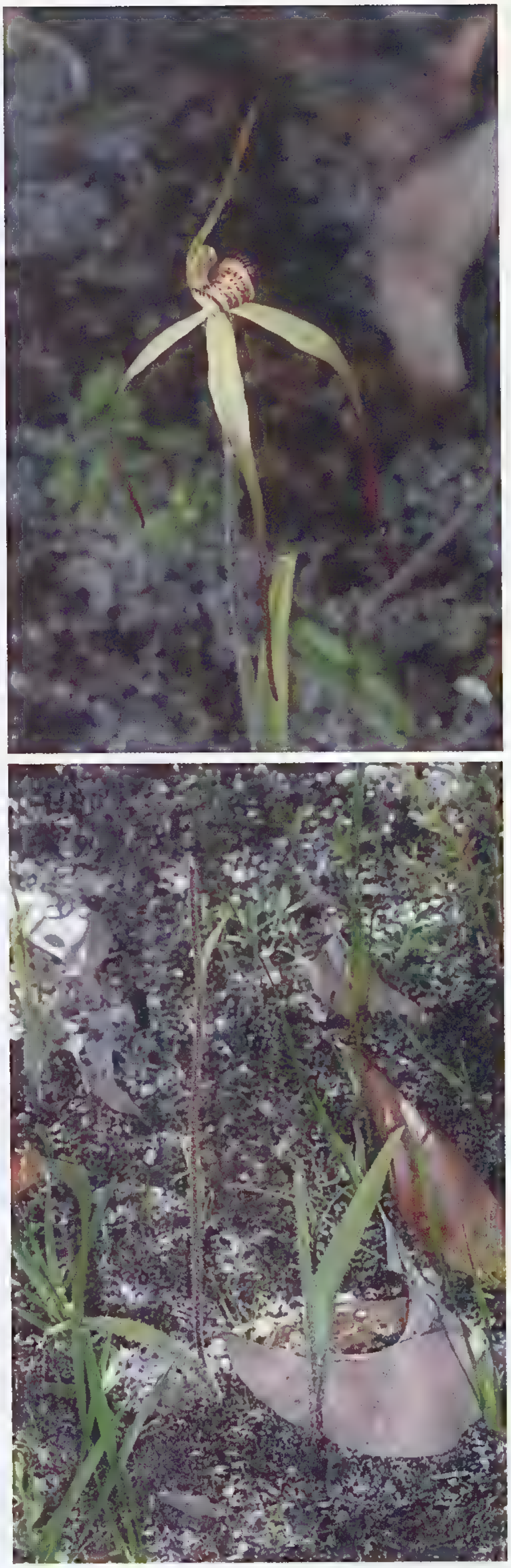

Figure 5. *Caladenia orientalis* flower (top), and grazed *C. orientalis* flowers (bottom), in Wilsons Promontory following the 2009 bushfires.

Figure 6. A happy orchid enthusiast who was part of a group that found new populations of two Nationally threatened species, during a search weekend in Wilsons Promontory (photo: Emma Roe).

dramatically increased in the two years since the 2009 bushfire. At Wilsons Promontory there were fields of spider orchids in the heathlands in the northern section of the park. These species are part of an ongoing monitoring program (pre- and post-fire), and the results show that at Wilsons Promontory, the most common fate of a flower was to be grazed (Figure 5). Fifty-five percent of the *C. orientalis* flowers and 50% of the *C. tessellata* flowers were grazed, clearly demonstrating that the potential benefits of the post-fire flowering response, such as increased seed production and therefore increased recruitment of new individuals, was being severely limited. In the *C. orientalis* population, 30% of flowers successfully produced seed pods, which is a relatively good rate for a species employing sexual deception as its pollination strategy (Tremblay *et al.* 2005). On the other hand, only 10% of *C. tessellata* flowers successfully produced seed pods in 2010. This low rate of seed production is a concern for the recovery of *C. tessellata*, and this species is likely to benefit from caging of individuals, fencing of populations, and hand pollination of flowers to increase seed production. A reduction in seed production also represents a lost opportunity for species that are fire simulated or fire dependent, in terms of achieving recruitment to the population.

The strong stimulation of flowering that occurs in many orchid species following a bushfire also offers a great opportunity to search for and discover new populations. To capitalise on this window of opportunity, a search weekend was organised at Wilsons Promontory to try and discover new populations of *C. orientalis* and *C. tessellata*. Members of the Promenades (the friends of Wilsons Promontory) and the conservation group of the Australasian Native Orchid Society (Victorian Group) joined DEPI and Parks Victoria staff for the search that located multiple new populations of both the target species, some comprising more than 100 individuals. By the end of the weekend everyone was tired, blackened by the burnt landscape, and very happy (Figure 6).

5. Fire Dependent Species

While many Victorian orchid species are stimulated to flower by a bushfire, some are actually dependent upon fire to flower. These species have geared their whole life cycle around only flowering in the year (or occasionally couple of years) following a bushfire. While the removal of competing vegetation, and an increase in available nutrients, may both play a role in breaking dormancy in these species (Dixon and Tremblay 2009), the main factor stimulating mass flowering is believed to be the ethylene gas released by the fire front (Brown *et al.* 2008, Jeanes and Backhouse 1995, Dixon and Tremblay 2009, Dixon and Barrett 2003). Jones (1988) reported that only three orchid species in southeast Australia were dependent upon fire to flower – *Burnettia cuneata*, *Pyrorchis nigricans* and *Leptoceras menziesii*. However, *Prasophyllum australe* should be added to this group. All four fire dependent species occur within the area affected by the 2009 bushfire, and all showed a strong flowering response.

One species that is rarely seen is *B. cuneata*

(Figure 7). It spends most of its life cycle underground as a small dormant tuber. During this period, which may last for decades, it is probably dependent upon a mycorrhizal fungus for its nutrient supply (Backhouse and Jeanes 1995). However, this all changes following a bushfire, when dormancy is broken and *B. cuneata* plants are stimulated to flower *en masse*. This phenomenon occurred at Wilsons Promontory following the 2009 bushfire. Mass flowering of *B. cuneata* plants was observed in the moist, peaty soils associated with *Melaleuca squarrosa* swamps in the northern section of the park in late September and October 2009. Hundreds of short, fleshy, dark reddish brown stems were seen emerging from the charred soil. Each plant has one to five whitish flowers that open fully for just a few days in warm weather. This flowering response only lasts for the first year after a fire (Jones *et al.* 1999; Backhouse and Jeanes 1995), and its brevity can be best illustrated by the observation that no flowering *B. cuneata* plants were reported in Wilsons Promontory during the second spring after the bushfire (i.e. Sept-Oct 2010).

Conclusion

The range of responses to bushfire displayed by Victorian orchids is incredibly diverse, with species such as *S. australis* being killed in the intense fire front, species such as *B. cuneata* only flowering in the year following a bushfire, and all other species forming a spectrum between these extremes. No wonder we love them.

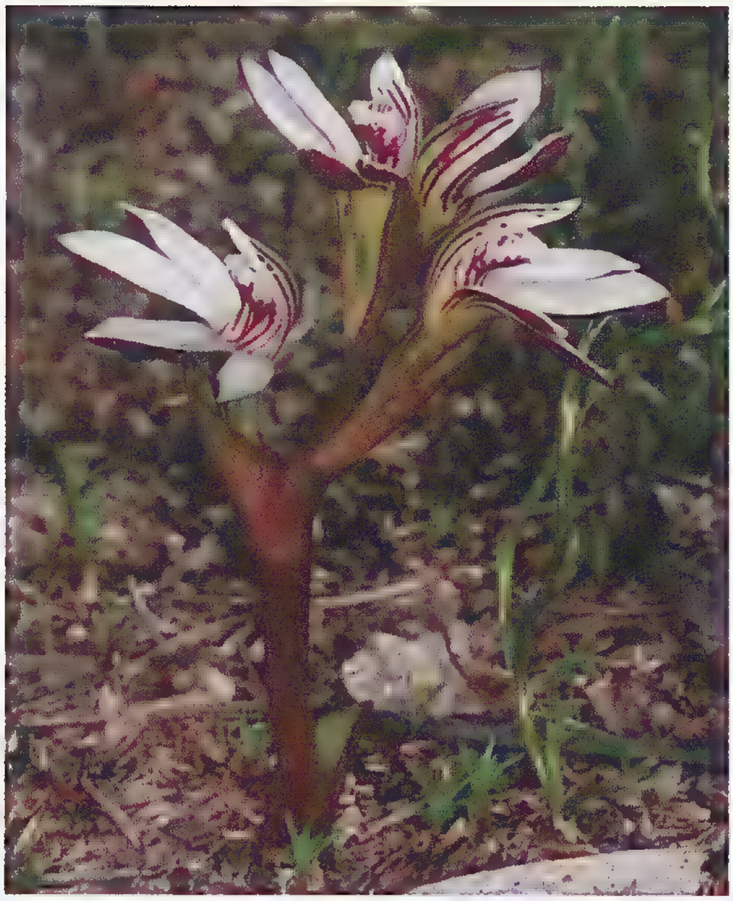

Figure 7. Close up of a *Burnettia cuneata* plant in Wilsons Promontory following the 2009 bushfires.

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References

Backhouse GN, Jeanes JA (1995) *The Orchids of Victoria*. Melbourne University Press, Melbourne.

Bates RJ, Weber JZ (1990) *Orchids of South Australia*. Government Printer, South Australia.

Brown AP, Dundas P, Dixon KW, Hopper SD (2008) *Orchids of Western Australia*. University of Western Australia Press, Nedlands.

Calder DM, Cropper SC, Tonkinson D (1989) The ecology of *Thelymitra epipactoides* in Victoria, Australia, and the implications for management of the species. *Australian Journal of Botany* **37**: 19-32.

Coates FC, Duncan MJ (2009) Demographic variation between populations of *Caladenia orientalis* – a fire-managed threatened orchid. *Australian Journal of Botany* **57**, 326-339.

Dixon KW, Barrett RL (2003) Defining the role of fire in south-west Western Australian plants. *In* 'Fire in ecosystems of south-west Western Australia: impacts and management'. (Eds I

Abbott, N Burrows) pp. 205–223. Backhuys Publishers, The Netherlands.

Dixon KW, Tremblay RL (2009) Biology and natural history of *Caladenia*. *Australian Journal of Botany* **57**: 247-258.

Jeanes JA, Backhouse GN (2006) *Wild Orchids of Victoria Australia*. Aquatic Photographics, Melbourne.

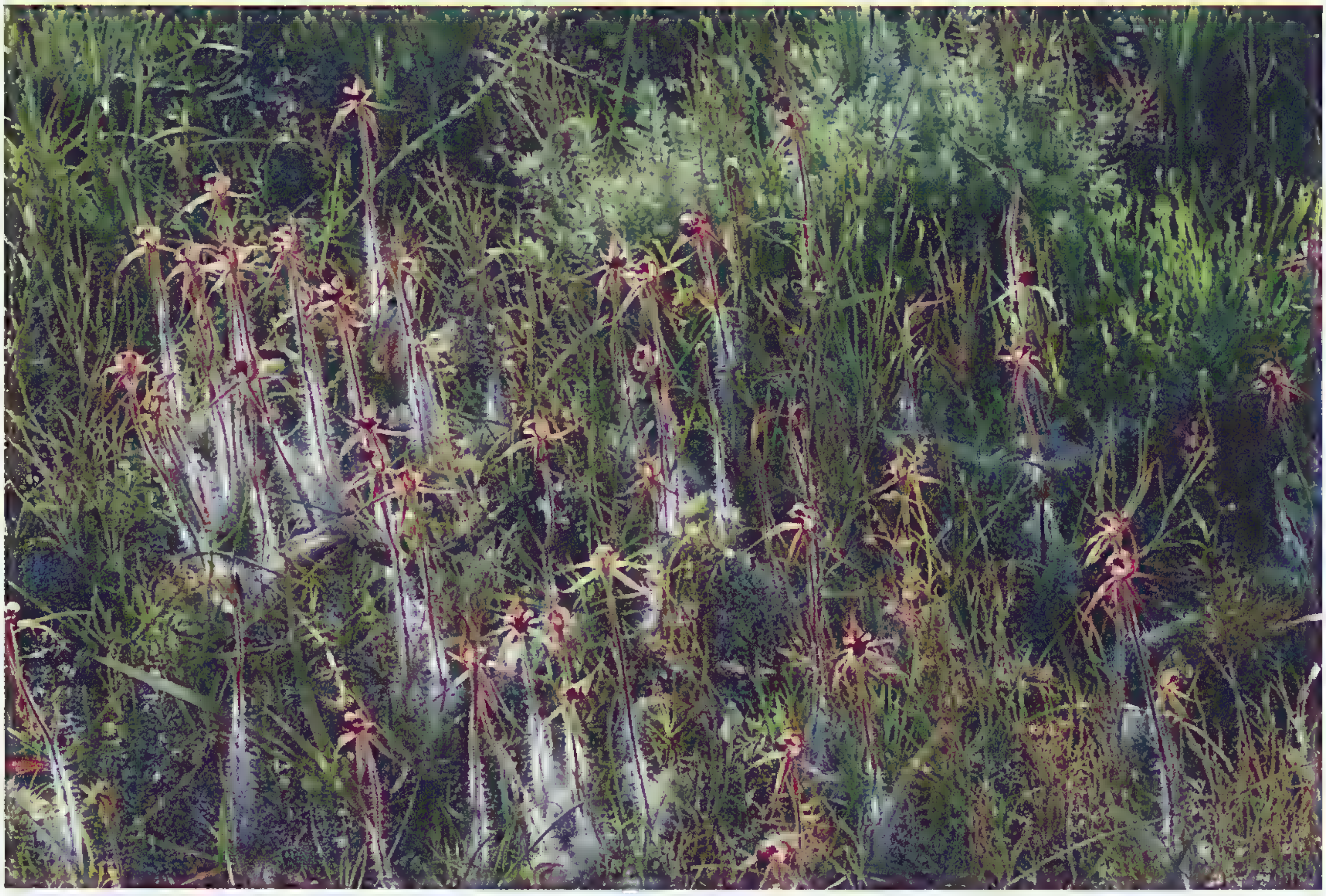
Jones DL (1988) *Native Orchids of Australia*. Reed Books, Sydney.

Jones DL (2006) *A Complete Guide to Native Orchids of Australia including the Island Territories*. Reed New Holland, Sydney.

Jones DL, Clements MA (2002) *Australian Orchid Research Volume 4*: A Review of *Pterostylis*. Australian Orchid Foundation, Melbourne.

Jones DL, Wapstra H, Tonelli P, Harris S (1999) *The Orchids of Tasmania*. Melbourne University Press, Melbourne.

Tremblay RL, Ackerman JD, Zimmerman JK, Calvo RN (2005) Variation in sexual reproduction in orchids and its evolutionary consequences: a spasmodic journey to diversification. *Biological Journal of the Linnean Society* **84**: 1-54.



Mass flowering of *Caladenia clavigera* in Wilsons Promontory following the 2009 bushfires.

Corunastylis tenella (Orchidaceae: Diurideae), a new species from north-eastern New South Wales and south-eastern Queensland

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Abstract

Corunastylis tenella D.L.Jones & L.M.Copel., another member of the *Corunastylis sagittifera* complex, is described as new. The new species is considered to be vulnerable within its restricted distribution in northern New South Wales and far southern Queensland. Notes on its distribution, habitat, conservation status and distinguishing features are given.

Key words
Corunastylis tenella, Corunastylis sagittifera, Orchidaceae, Diurideae, new species, endangered, New South Wales, Australia.

Introduction

Another species of the *Corunastylis sagittifera* (Rupp) D.L.Jones & M.A.Clem. complex is described here as new.

Taxonomy

Corunastylis tenella D.L.Jones & L.M.Copel., **sp. nov.** with affinity to *Corunastylis sagittifera* (Rupp) D.L.Jones & M.A.Clem. but differing by having smaller flowers (4-5mm x c. 4mm cf. 5-6mm long, c. 5mm diam., with thinner shorter sepals, shorter petals and a smaller obovate labellum (oblong in *C. sagittifera*) with fewer, shorter cilia.

Type: New South Wales: North Western Slopes: c. 20 km SSW of Inverell, Howell, 29°57'S, 151°02'E, *L.M. Copeland 3729*, 11 Apr. 2004 (holo CANB 584685; iso NE, NSW). (Precise locality details withheld for conservation purposes).

Illustration: None found

Description: *Leaf* terete, 10-20cm long, 0.05cm wide, dark green; base reddish; lamina sheathing the scape, subulate, 10-20mm long, c. 2mm wide, ending below the first flower. *Inflorescence* 10-20cm long, bearing 5-21 flowers moderately well-spaced in a spike 20-40mm long. *Flowers* porrect to semi-deflexed, 4-5mm long, c. 4mm diam., green with reddish-purple lines; labellum and labellum hairs reddish; lateral sepals porrect to obliquely erect. *Dorsal sepal* cucullate, narrowly ovate-lanceolate, c. 4mm long, c. 1.6mm wide, deeply concave, pale green with red margins and three red stripes; margins entire; apex acuminate. *Lateral sepals* linear-oblong, 3.5-4mm long, c. 0.8mm wide, slightly gibbous at the base, divergent; distal margins involute; apex subacute. *Petals* incurved to slightly spreading, narrowly ovate-lanceolate, 2.5-3mm long, c. 1.2mm wide, with red margins and a red central stripe; margins entire; apex long-acuminate. *Labellum* hinged by a short claw, semi-deflexed, not mobile in a breeze, purplish red, base paler, margins darker. *Lamina* obovate, c. 2.2mm long, c. 1.2mm wide, thin-textured; apex recurved; margins with short (0.3-0.7mm long), spreading, red-purple cilia; apex acute. *Labellum callus* occupying about half the ventral surface of the lamina, extending nearly to the labellum apex, purple, thickest and broadest near the apex. *Column* c. 1.4mm long, c. 0.8mm wide, whitish to reddish. *Column wings* acute, entire, curved, the anterior margins irregularly ciliate. *Anther* c. 0.8mm long, with a short filiform rostrum. *Pollinarium* c. 1.2mm long; *pollinia* c. 0.8mm long, yellow, coarsely granular. *Stigma* elliptic, c. 0.6mm long. *Capsules* not seen. **Figs. 1 & 2.**

Distribution: Known with certainty only from the Howell and Torrington districts of northern New South Wales and the Stanthorpe district of far southern Queensland. Given the abundance of suitable habitat throughout this region, however, and the inconspicuous nature of *C. tenella*, it is likely that the species has additional populations that are yet to be found.

Habitat: All plants observed grow in a shallow sandy-loam around the edges of granite outcrops at altitudes of 710-1000m. The vegetation is usually a layered woodland with scattered trees of *Eucalyptus prava* and *Callitris endlicheri*. The shrub layer is particularly diverse with the most common species being *Leucopogon neo-anglicus*, *L. muticus*, *Homoranthus prolixus*, *Babingtonia densifolia* and *Calytrix tetragona*. Herbs and grasses are relatively uncommon with just a few species emerging from a dense ground layer of mosses and lichens.

Notes: This species has the smallest flowers of any member of the *Corunastylis sagittifera* (syn. *Genoplesium sagittiferum*) complex. Bishop (2000, p.55) tentatively reports plants broadly matching *C. sagittifera* as occurring "through New South Wales, especially on the tablelands, from the far north to the southern Tablelands". The true identity of these northern records is assumed to be *C. tenella* although there is some uncertainty due to a lack of adequate herbarium vouchers.

Flowering period: Open flowers have been observed from late January through to late May.

Conservation status: This species is currently known with certainty from only three populations and fewer than 100 individuals, although we believe that several additional populations are likely to occur. The type population at Howell occurs on vacant crown land although it is afforded some protection as the habitat is formally listed as an endangered ecological

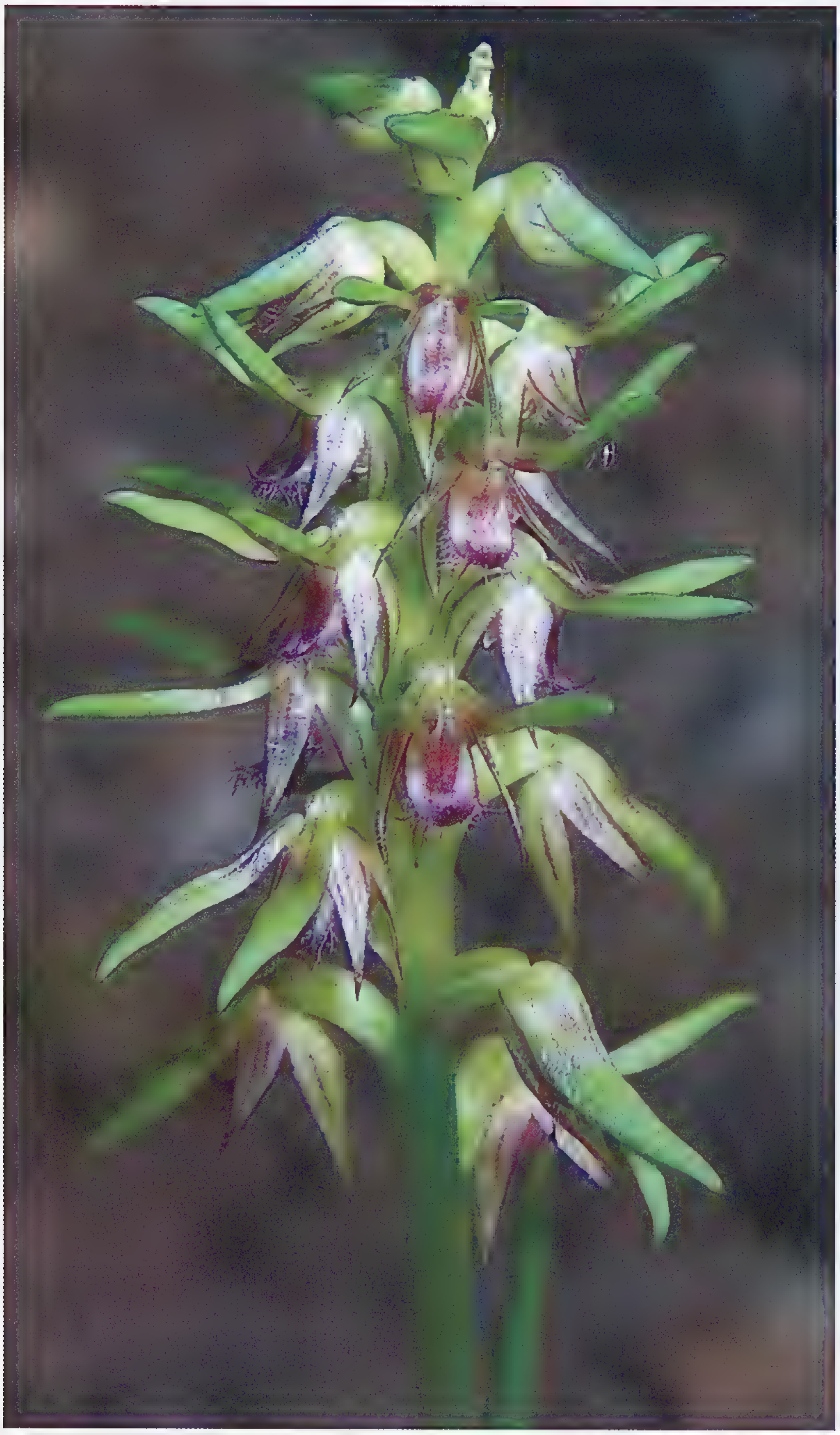

Figure 1. *Corunastylis tenella* in the type population at Howell, northern NSW. Photography by Lachlan Copeland.

community (Howell Shrublands in the Northern Tablelands and Nandewar Bioregions) under the *NSW Threatened Species Conservation Act 1995. Corunastylis tenella* is considered vulnerable due to its small number of populations, small population sizes, unreserved tenure and potential threats such as grazing by feral goats and habitat disturbance by feral pigs. A ROTAP code of 3V is recommended following the criteria of Briggs & Leigh (1996).

Etymology: From the Latin *tenellus*, delicate, dainty, alluding to the habit and general appearance of this species.

Additional specimens examined

New South Wales: North Western Slopes: c. 20 km SSW of Inverell, Howell, 29°57'S, 151°02'E, *L.M. Copeland 4055*, 2 Apr. 2006 (CANB); c. 15 km SSW of Inverell, Howell, 29°56'S, 151°02'E, *L.M. Copeland 4213*, 24 Mar. 2007 (CANB); Northern Tablelands: c. 5 km WSW of Torrington, 29°19'S, 151°38'E, *L.M. Copeland 3339*, 25 Jan. 2002 (NE). (Precise locality details withheld for conservation purposes).

Acknowledgements

We are grateful to the directors of BRI, CANB, NSW and NE for allowing access to specimens held within their herbaria. We also thank Dell Whan, Ian Milinovich and Robert Higgins for providing additional habitat information and photographs of *C. tenella*.

References

Bishop, T (2000) *Field Guide to the Orchids of New South Wales and Victoria.* 2nd edition. University of New South Wales Press: Sydney

Briggs JD & Leigh JH (1996) *Rare or Threatened Australian Plants*, revised edition. CSIRO: Collingwood.

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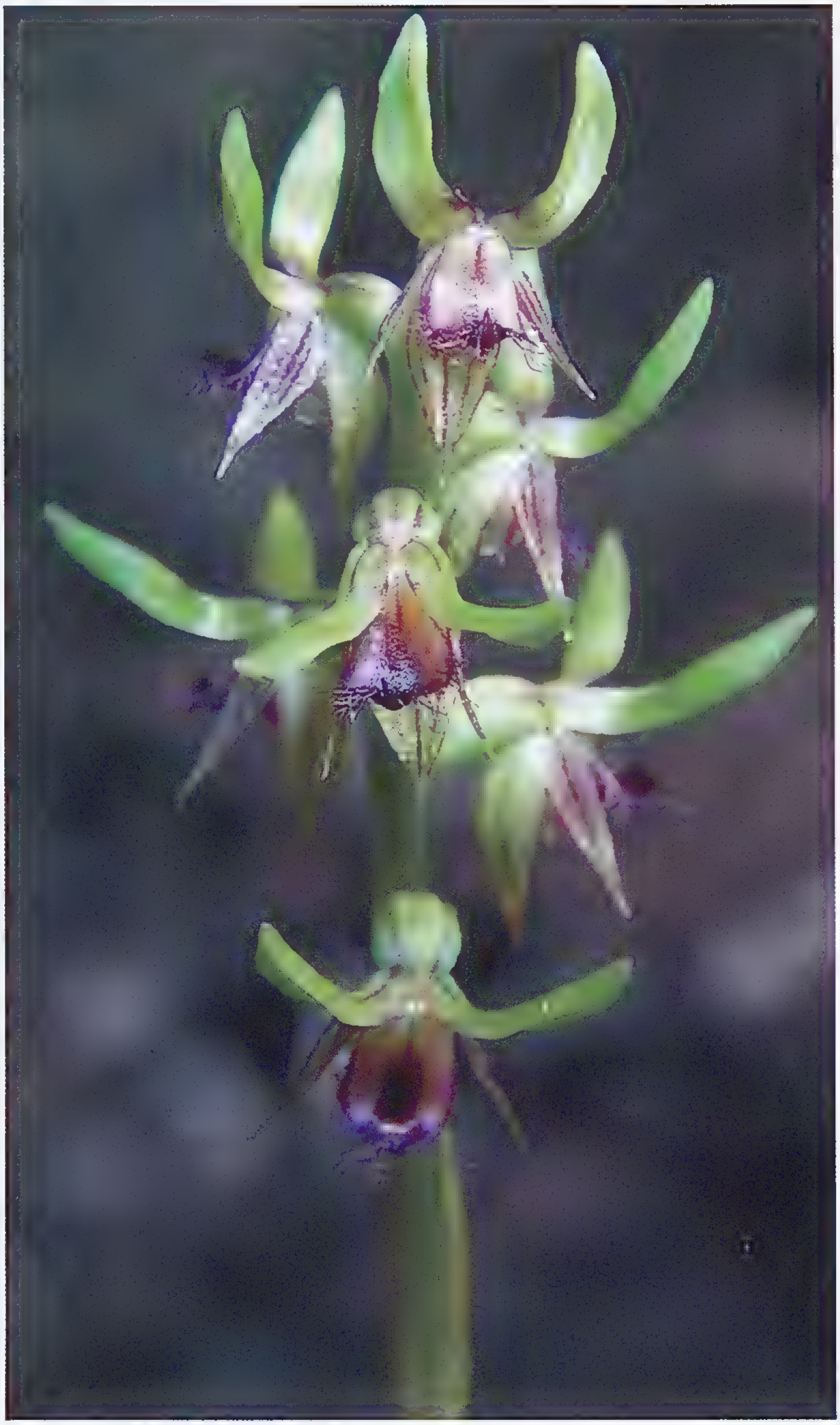

Figure 2. *Corunastylis tenella*, in the type locality, Howell, northern NSW. Photograph by Lachlan Copeland.

Notes on four species of Solomon Archipelago and Vanuatu *Agrostophyllum.*

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ABSTRACT: Study of herbarium material of *Agrostophyllum* from the Solomon Archipelago and Vanuatu reveals three new records and one new taxon, the latter here described as *A. clausum*.

Keywords: *Agrostophyllum*, Pacific Islands, new species.

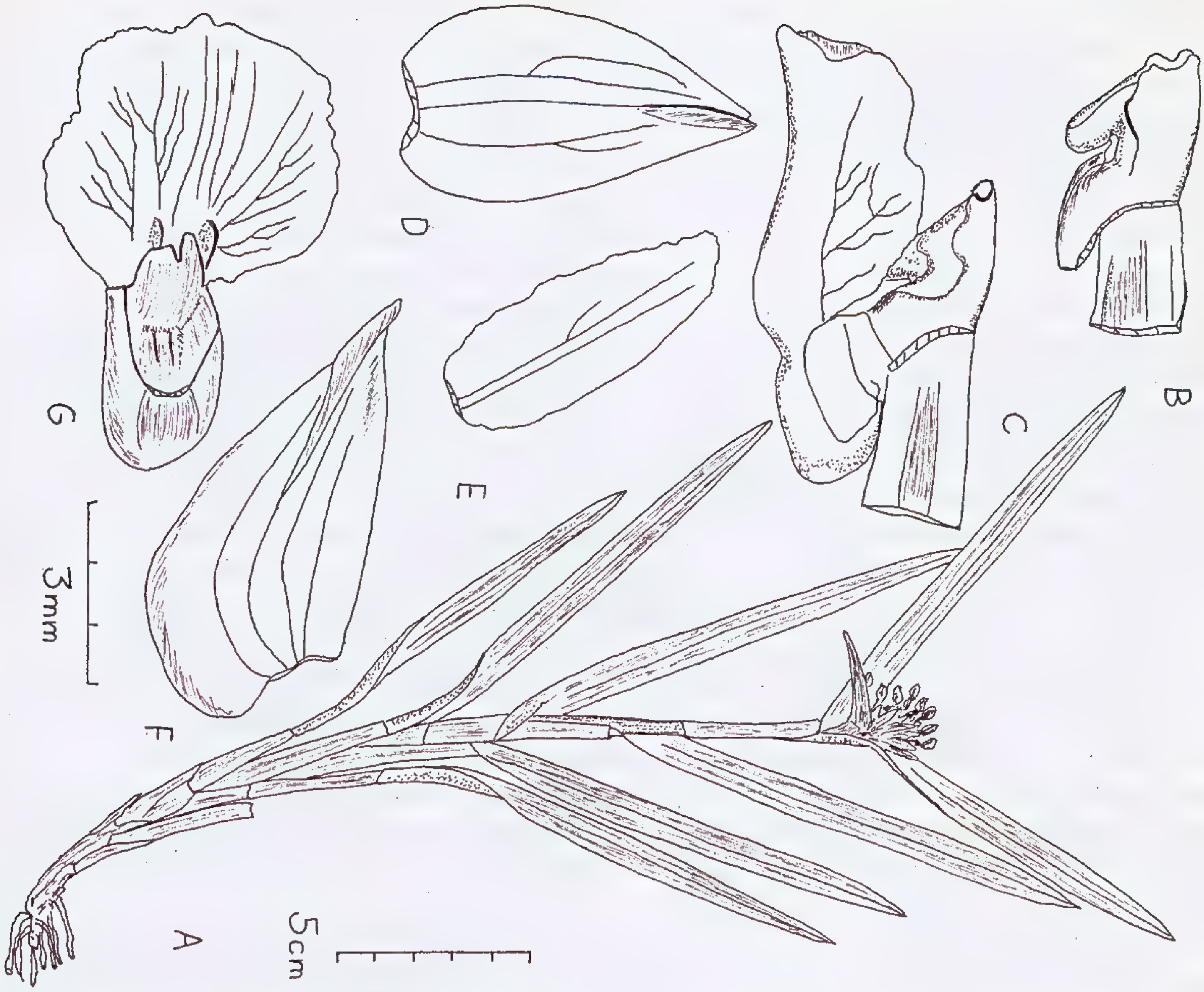
Ten species (none endemic) of *Agrostophyllum* Blume have been recorded from the Solomon archipelago and Vanuatu (Lewis & Cribb 1989, 1991; Ormerod 1995). Examination of herbarium material from the study area reveals that there are at least fourteen species present and perhaps four [Bougainville (1), Solomon Islands (1), Vanuatu (2)] of these may be endemics. Unfortunately specimens of three of the possible novelties bear old inflorescences with capsules and currently cannot be described.

The species now recorded from the study area are *A. aristatum* Kores, *A. clausum* Ormerod, *A. curvilabre* J.J. Sm. (identification doubtful), *A. elongatum* (Ridl.) Schuit., *A. megalurum* Rchb.f., *A. neoguinense* Kittr., *A. paniculatum* J.J. Sm., *A. parviflorum* J.J. Sm., *A. stenophyllum* Schltr., *A. superpositum* Schltr., and *A. torricellense* Schltr. A record (Lewis & Cribb 1989) of *A. leucocephalum* Schltr. from Vanuatu [*Cabalion 2777* (K!)] refers to a likely undescribed entity. As shown below, the records of *A. graminifolium* Schltr. and *A. majus* Hook.f. are based on misidentifications.

Agrostophyllum aristatum Kores, Allertonia 5, 1: 107, 1989.
Type: Fiji, Viti Levu, Mba Prov., April to May 1905, *E. im Thurn F36* (Holotype: K).
Distribution: Fiji; Vanuatu.
Specimens examined: Fiji, Vanua Levu, Mbua Prov., Mbua (Sandalwood) Bay, *U.S. Expl. Exped. s.n.* (GH). Viti Levu, Naitasiri Prov., Wainimala Valley, Vuwa Falls trail, Waisiwiwi Creek (a tributary of Wainamo Creek), 485 m, 6 August 1937, *H. St. John 18254* (AMES); Namosi Prov., Mt. Naitarandamu, 800 m, 28 September 1927, *J.W. Gillespie 3163* (AMES).
Vanuatu, Pentecost, Tambok Village, 510-520 m, 17 January 1989, *J. Wheatley 141* (K).

This species is known from nine collections but only the type has examinable flowers. The new record from Vanuatu is vegetatively identical to specimens from Fiji. Among named Pacific species, *A. aristatum* may be recognised by its stout habit and relatively broad (2.5-3.5 cm wide), oblong-ligulate leaves.

Agrostophyllum clausum Ormerod, *sp. nov.*
Type: Vanuatu, Espiritu Santo, Saktouy to Tabwemasana, summit of first peak, 1500 m, 24 October 1988, *P. Cribb & J. Wheatley 90* (Holotype: K!).
Agrostophyllum graminifolium auct. non Schltr.: Lewis & Cribb, Orch. Vanuatu: 80, 1989.
Affinis A. graminifolium Schltr. *sed floribus inapertis, epichilo labello subquadratis (vs. trapeziformis ad transverse ellipticis) et columna brevioribus (2.1 vs. 2.75-3.40 mm) differt*
Epiphytic herb. Roots terete, pubescent, ca. 1.0-1.5 mm thick. Stems caespitose, 7-9 leaved, subterete basally, compressed above, upper internode occasionally exposed for 2.7-4.5 cm, 21.0-33.6 cm long, 0.25-0.50 cm wide, 0.80-1.35 cm wide across sheaths above. Leaves linear-ligulate, apices shortly bilobed to bicuspidate, thinly coriaceous, shiny dark green above, duller midgreen below, 9.0-13.5 cm long, 0.70-0.85 cm wide; leaf sheaths finely striate dry, black-margined, 0.35-0.50 cm wide laterally; stipules often absent, when present minute, deltate, acute, to ca. 0.3 mm long. Inflorescence terminal, semiglobose, composed of numerous sheaths and bracts, 2.5-3.0 cm wide. Flowers white, barely or not opening, possibly cleistogamous. Pedicel with ovary terete, 8 mm long. Dorsal sepal ovate, acute, carinate in upper third, 3 veined, 5.0-5.1 mm long, 2.9 mm wide. Lateral sepals obliquely ovate, acute, carinate in upper half, 4 veined, 7 mm long basally (6 mm long along midvein), 3.3 mm



Agrostophyllum clausum—**A**. plant; **B**. column; **C**. flower minus tepals; **D**. dorsal sepal; **E**. petal; **F**. lateral sepal; **G**. labellum. A and B-F to respective scales. A drawn from *Wheattley 42*, rest from holotype.

wide. Petals oblong-lanceolate, obtuse, 2 veined, 4.9 mm long, 1.95 mm wide. Labellum trilobed, 6.5 mm long; hypochile retrorse saccate, sidelobes shortly obtuse-truncate, ca. 2.5 mm long, sac ca. 1.1 mm long; ligula subquadrate, apex inequally bilobed, each lobules obtuse to truncate, minutely papillose-pubescent; epichile subquadrate, subacute, base with 2 narrowly oblong calli, ca. 4 mm long, 4.2 mm wide. Column short, stout, substigmatic appendage pronounced, ca. 2.1 mm long (minus anther cap).

Distribution: Vanuatu.

Specimen examined: Vanuatu, Ambae, above Mbangamera, 1300 m, 22 November 1988, *J. Wheatley 42* (K).

Habitat: Epiphytic in moss in dwarf montane forest (type), in fairly open situation under open canopies of *Weinmannia*-Myrtaceae (*Wheatley 42*), 1300-1500 m.

Etymology: From the Latin *clausus,* meaning closed, in reference to the closed or barely open flowers.

This species appears to be a close relative of the Papua New Guinean *A. graminifolium* Schltr. but differs from it in having flowers with a subquadrate (vs. trapeziform to transversely elliptic) labellum epichile, and a shorter (2.1 vs. 2.75-3.40 mm) column with a much more pronounced substigmatic appendage.

Agrostophyllum neoguinense Kittr., Bot. Mus. Leafl. Harv. Uni. 30, 2: 98, 1985.

Basionym: *Chitonochilus papuanum* Schltr., in Schum. & Laut., Nachtr. Fl. Deutsch. Schutzgeb. Suds. 2: 134, t.8, 1905.

Type: Papua New Guinea, Torricelli Range, 800 m, April 1902, *R. Schlechter 14420* (Holotype: B, destroyed; Isotypes: AMES!, BRI!, W).
Agrostophyllum graminifolium auct. non Schltr.: Lewis & Cribb, Orch. Solomon Isl. & Boug.: 127, 1991.
Distribution: Papua New Guinea; Solomon Islands.
Specimens examined: Papua New Guinea, Madang Prov., Karkar Island, 915 m, 23 January 1968, *C.E. Ridsdale NGF 36738* (BRI). North Solomons Prov., Bougainville, Buin, Koniguru, 900 m, 24 August 1930, *S.F. Kajewski 2140* (BRI). Solomon Islands, Guadalcanal, Kichia River, 580 m, 2 April 1987, *S. Wickison 102* (K).
Vernacular name: Matee (*Kajewski 2140*).
This species resembles *A. leucocephalum* Schltr. in habit by having slender leafy stems with narrow grassy leaves but it differs from that taxon (and all others in section *Agrostophyllum*) in the inflorescence lacking the sheaths that surround it.
The specimens from Bougainville and the Solomons represent new records for those islands.

Agrostophyllum parviflorum J.J. Sm., Bull. Dep. Agr. Indes Neerl. 19: 3, 1908.
Type: Indonesia, Papua Prov., Noord River, May 1907, *G.M. Versteeg 1043* (Holotype: BO).
Agrostophyllum majus auct. non Hook.f.: Lewis & Cribb, Orch. Vanuatu: 80, 1989; Orch. Solomon Isl. & Boug.: 128, 1991.
Distribution: Indonesia (Papua Prov.); Papua New Guinea; Solomon Islands; Vanuatu; New Caledonia (?).
Specimens examined: Papua New Guinea, North Solomons Prov., Bougainville, Pavairi, 550 m, 26 January 1967, *P.S. Lavarack & C.E. Ridsdale NGF 31263* (K).
Solomon Islands, New Georgia, Barora Logging Camp, 480 m, 22 July 1986, *S. Wickison 18B* (K); same area, 370 m, 30 July 1986, *S. Wickison 18D* (K); Viru Harbour, 1.5 m, 9 June 1965, *L'Maenu'u BSIP 5986* (BSIP, K); Vaimbu River, 15 m, 27 May 1964, *Cowmeadow's collectors BSIP 3270* (BSIP, K). Santa Isabel, Korigole Bay, 3 m, 13 June 1966, *W. Beer's collectors BSIP 7302* (BSIP, K).
Vanuatu, Erromanga, Traitors Head, 610 m, 21 August 1930, *Native Collectors 96* (K). Espiritu Santo, Cumberland Peninsula, Pialapa River, 600 m, 30 September 1989, *B.A. Lewis & J. McDonagh 38* (K); W slopes Cumberland Peninsula, Penaoru, 780 m, 14 November 2006, *J.-N. Labat 3858* (K). Vanua Lava, Mt. Wensaoro, 400 m, 26 October 1989, *B.A. Lewis & J. McDonagh 122* (K).
This relatively widespread lowland species probably has the smallest flowers in the genus. It has been confused with the West Malesian *A. majus* Hook.f. but the latter has (when viewed from above) a broadly ovate (vs. subquadrate-circular) labellum hypochile with pronounced (vs. low rounded) lobulate sides, an epichile that is broader than long (2.2 x 2.9 mm) with two large convexities on its upper surface (vs. an epichile about as broad as long, 2 x 1.85-190 mm, and lacking convexities), and a longer (3.2 vs. 2 mm) column.
I cannot identify a fruiting specimen [*Iromea RSS 2538* (K)] from Kolombangara Island cited under *A. majus* by Lewis & Cribb (1991). This plant differs from *A. parviflorum* in having much more tapered leaves that dry light (not dark) green. It possibly represents an undescribed endemic species.

Acknowledgements.
I wish to thank herbarium and library staff at BRI, BSIP, HUH (A, AMES, GH) and K for their help and hospitality during my visits. Lorna Ngugi (BRI) and Alan Bolin (BRI) kindly supplied images of material held in the Queensland Herbarium.

Literature Cited.

Lewis BA & Cribb P (1989) *Orchids of Vanuatu*. RBG Kew.
Lewis BA & Cribb P (1991) *Orchids of the Solomon Islands and Bougainville*. RBG Kew.
Ormerod P (1995) Complementary Studies of Solomon Archipelago Orchids. *Austral. Orch. Rev.* 60(2): 35-39.

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Sarcochilus Colonial Rose . . . . . Greg Steenbeeke 406
Dendrobium Hot Coals . . . . . . Greg Steenbeeke 408
Dendrobium Aussie's Ethos . . . . . Greg Steenbeeke 409
Figure 1. Indicative distribution of *Sarcochilus hartmannii* . DSEWPaC 410
Figure 2. Comparison of changes in the width of petals, dorsal sepal, lateral sepals and labellum of *S. hartmannii* over the period of 1979 to 2011 412
Figure 3. *Sarcochilus hartmannii* 'Kerri' AM/AOC . . AOC Website 414
Figure 4. *Sarcochilus hartmannii* 'Snowbert' AM/AOC . Greg Steenbeeke 414
Figure 1. Sites that were burnt during the 2009 Bushfires . Mike Duncan 415
Figure 2. *Sarcochilus australis* plant—in flower and after fire . Mike Duncan 416
Figure 3. *Corybas diemenicus* and *C. fimbriatus* . . Mike Duncan 417
Figure 4. Pterostylis monticola flowering along roadsides . Mike Duncan 418
Figure 5. *Caladenia orientalis* in flower and grazed . . Mike Duncan 419
Figure 6. Happy orchid enthusiast at Wilsons Promintory . Emma Roe 420
Figure 7. Close up of *Burnettia cuneata* plant at Wilsons Promintory Mike Duncan 421
Mass flowering of *Caladenia clavigera* . . . . Mike Duncan 422
Figure 1. *Corunastylis tenella* in the type population at Howell, northern NSW Lachlan Copeland 424
Figure 2. *Corunastylis tenella* in the type locality, Howell, northern NSW Lachlan Copeland 425
Agrostophyllum clausum . . . . . Paul Ormerod 427
Large clump of *Pheladenia deformis* in flower after fire . Mike Duncan Back Cover
Dendrobium Avril's Gold 'Laine' . . . . David Banks Back Cover

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Sarcanthinae Show: 19th October 2013
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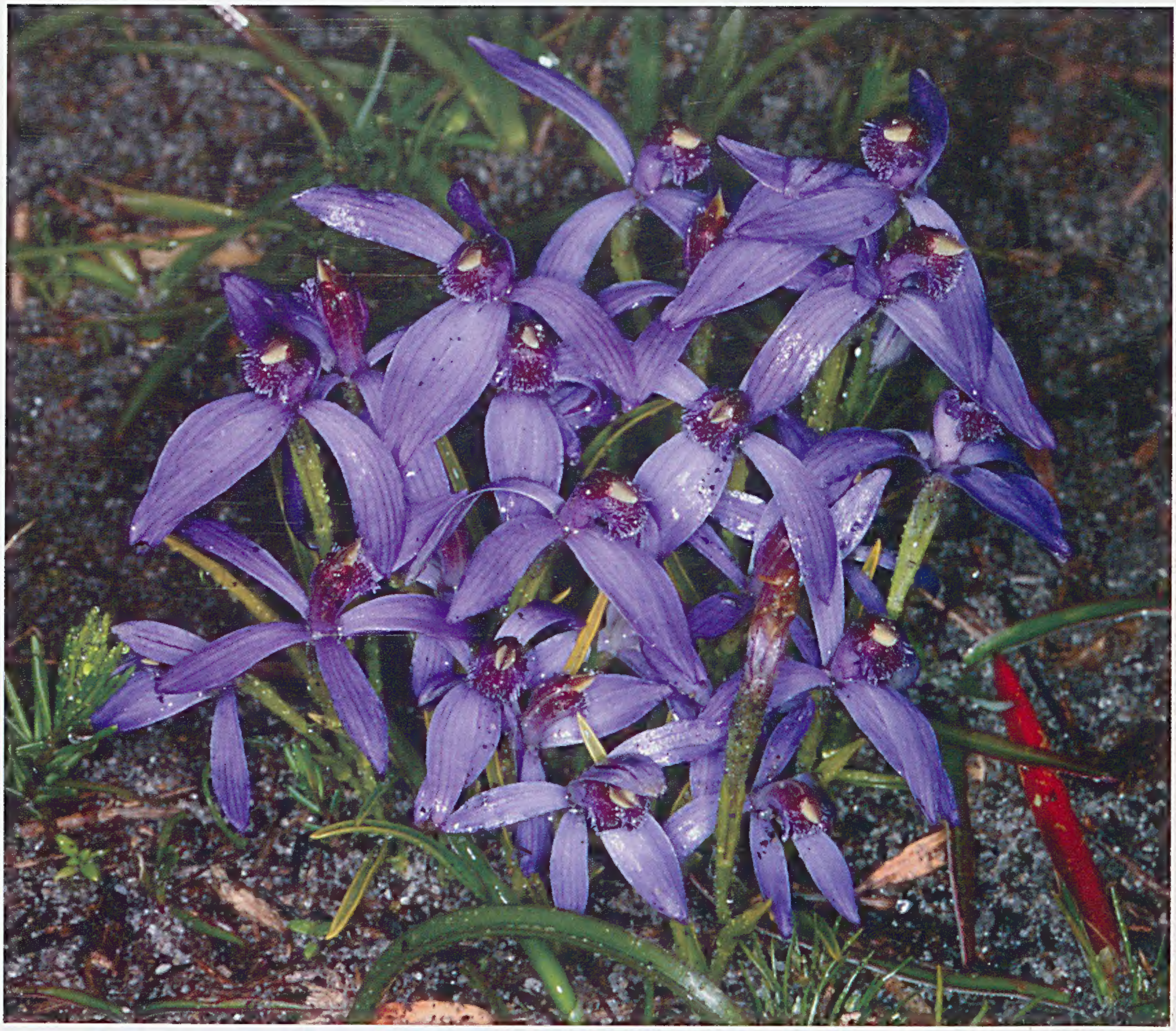
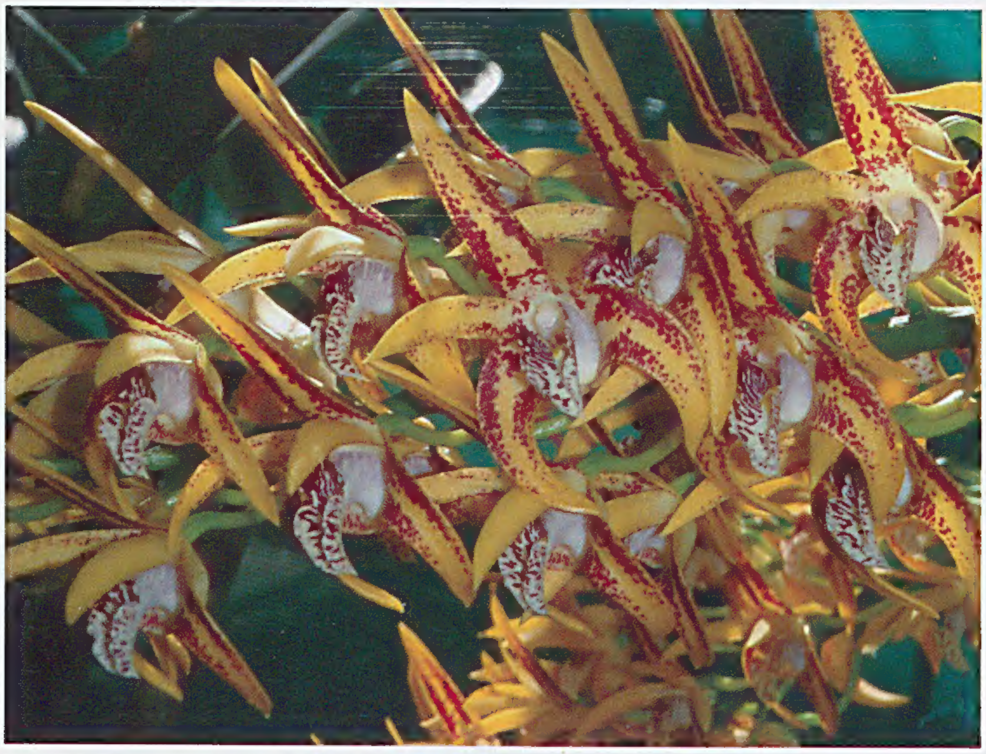
Weekend	Monday	Tuesday	Wednesday	Thursday	Friday
1st		Townsville		Beenleigh	Toowoomba Victoria
2nd	Western Australia	Illawarra Kabi	Central Coast Geelong	Mackay & District	
Far North Coast (Sat)	*3rd*	Warringah		Macarthur & District	Sydney
Mid-North Coast (Sun)	*4th*	South Australia	Melbourne suburbs	Newcastle	



Large clump of *Pheladenia deformis* flowers in Wilsons Promontory following the 2009 bushfires. See Mike Duncan's article on orchid survival in bushfire regions starting on page 415.



Dendrobium Avril's Gold 'Laine', on display at the 2013 Tinonee Orchids Open Day. See Ray's article on page 393 about this popular event held every year for the last 19 years on the NSW Mid North Coast.

Thanks to David Banks for this photo, and those accompanying the article.